

**United States Department of the Interior
Bureau of Land Management**

**Preliminary Environmental Assessment
for the September 2020 Competitive Oil & Gas Lease Sale**

DOI-BLM-CO-F020-2020-0024-EA

**Royal Gorge Field Office
3028 East Main Street
Canon City, Colorado 81212**

September 2020



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Chapter 1 - Introduction

1.1 Identifying Information

Background:

It is the policy of the Bureau of Land Management (BLM), as derived from various laws, including the Mineral Leasing Act of 1920 (MLA) and the Federal Land Policy and Management Act of 1976 (FLPMA), to make mineral resources available for disposal and to encourage the development of mineral resources to meet national, regional, and local needs.

The BLM Colorado State Office conducts quarterly competitive sales to lease available oil and gas parcels. A Notice of Competitive Lease Sale (Sale Notice), which lists lease parcels to be offered at the auction, is published by the Colorado State Office at least 60 days before the auction is held. Lease stipulations applicable to each parcel are specified in the Sale Notice. The decision as to which public lands and minerals are open for leasing and what leasing stipulations may be necessary, based on information available at the time, is made during the land use planning process.

In the process of preparing a lease sale, the Colorado State Office sends a draft parcel list to each field office where the parcels are located. Field office staff members then review the legal descriptions of the parcels to determine if they are in areas open to leasing and that appropriate stipulations have been included; verify whether any new information has become available that might require additional analysis in addition to what was conducted during the planning process; confirm that appropriate consultations have been conducted; and identify any special resource conditions of which potential bidders should be made aware. The proposed parcels are posted online for a 15-day public scoping period. BLM prepares appropriate National Environmental Policy Act (NEPA) documentation. Comments received from the public during scoping and any comment period are reviewed and incorporated into the NEPA document, as applicable.

After the field office completes the preliminary parcel review and any additional NEPA analysis, and makes a leasing recommendation to the state office, a list of proposed lease parcels and associated stipulations is made available to the public through a Sale Notice, which is posted on the Colorado BLM website at:

<https://www.blm.gov/programs/energy-and-minerals/oil-and-gas/leasing/regional-lease-sales/colorado>

Occasionally, the BLM may defer or withhold additional parcels prior to the day of the lease sale. In such cases, the BLM prepares an addendum to the Sale Notice. Prior to the lease sale, the Deputy State Director signs a decision in which he or she determines which parcels are available and will be offered for lease in the upcoming sale.

Parcels offered but not leased at the September 2020 lease sale will remain available to be leased for up to two years to any qualified lessee at the minimum bid cost. Parcels obtained in this way may be re-parceled by combining or deleting other previously offered lands. Mineral estate not leased within two years of an initial offering will no longer be available without undergoing a new competitive lease sale process again prior to being leased.

The act of leasing does not authorize any development or use of the surface of lease lands without further application by the lessee and approval by the BLM. In the future, the BLM may receive

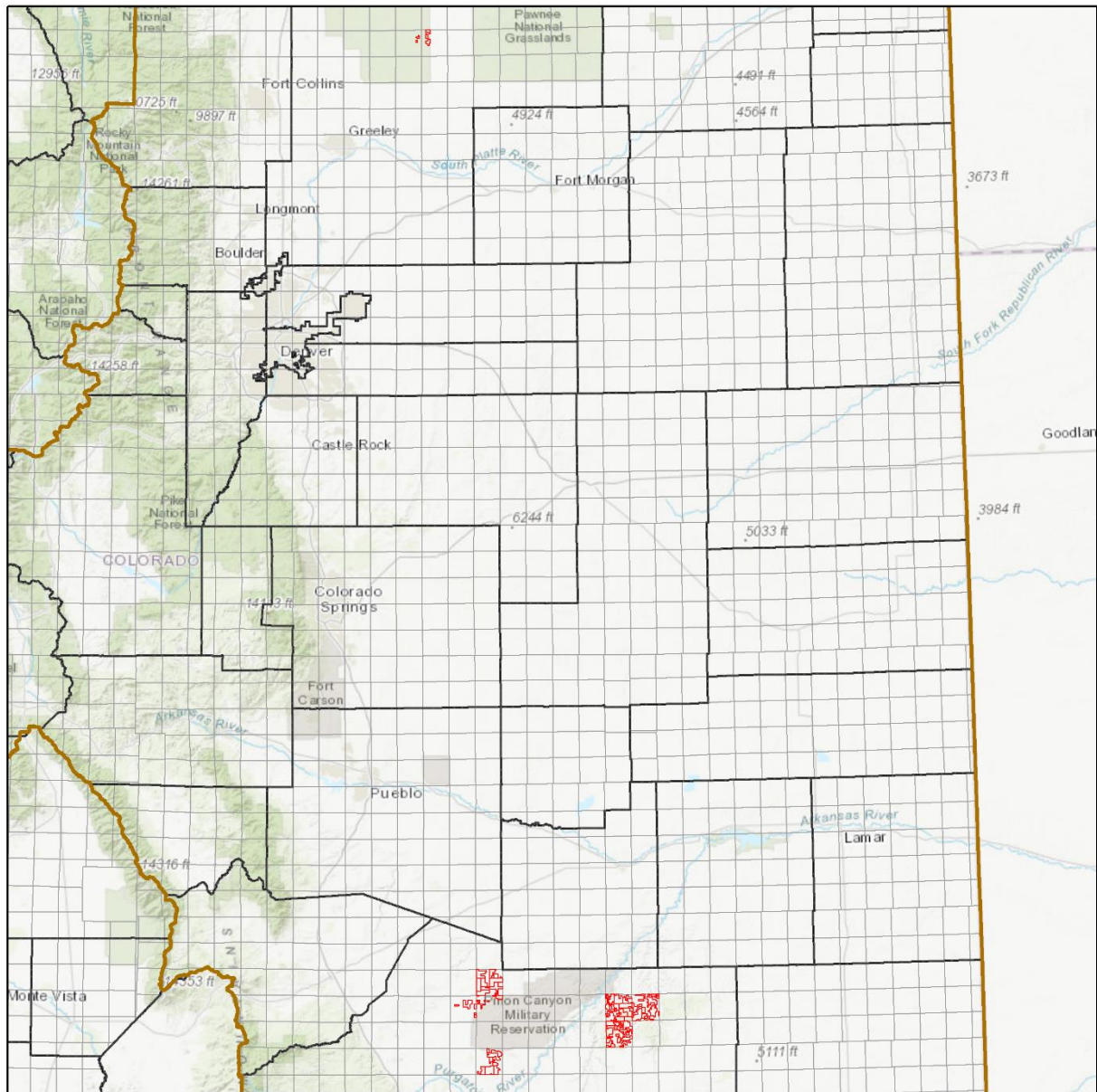
applications for permit to drill (APDs) for those parcels that are leased. If APDs are received, the BLM conducts additional site-specific NEPA analysis before deciding whether to approve the APD, and what conditions of approval (COAs) should apply.

Forty-three parcels comprising 67,004.000 total acres, consisting entirely of split estate (private surface land overlying Federal minerals) within the Royal Gorge Field Office (RGFO) were proposed for consideration in the September 2020 Competitive Oil and Gas Lease Sale. The legal descriptions of the proposed parcels are in Attachment A.

This environmental assessment (EA) documents the review of the proposed parcels under the administration of the Royal Gorge Field Office. It serves to verify conformance with the approved land use plans and provides the rationale for the field office's recommendation to offer or to defer particular parcels from a lease sale.

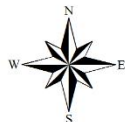
1.2 Project Location and Legal Description

Please see Attachments A, B, and C, and maps in Attachment E. A project area overview map follows.



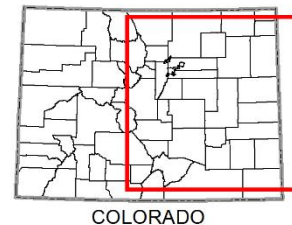
Project Overview Map September 2020 Competitive Oil and Gas Lease Sale Royal Gorge Field Office

NOTE TO MAP USERS
No warrantee is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of the data layers shown on this map. The official land records of the data providers should be checked or current status on any specific tract of land.



0 5 10 20 30 40
Miles

- September 2020 Parcels
- RGFO Field Office Boundary
- County Boundaries
- Township & Range



1.3 Purpose and Need

The purpose of the action is to consider opportunities for private individuals or companies to explore and develop federal oil and gas resources on specific public or split-estate parcels through a competitive leasing process. The need for the action is to consider parcels for possible leasing, consistently with the BLM's responsibility under the MLA, as amended, to promote the development of oil and gas on the public domain. Parcels may be identified for consideration by the public, the BLM, or other agencies. The MLA establishes that deposits of oil and gas owned by the United States are subject to disposition in the form and manner provided by the MLA under the rules and regulations prescribed by the Secretary of the Interior, where consistent with FLPMA and other applicable laws, regulations, and policies.

1.3.1 Decision to be Made

The BLM will decide whether to lease all, some, or none of the proposed parcels at the September 2020 lease sale. The BLM will also decide what stipulations should be attached to the parcels, and whether the stipulations should be applied to all lands in the parcels or to specific aliquots (portions).

1.4 Public Participation

1.4.1 Scoping

The principal goal of scoping is to identify issues, potential impacts, and potential alternatives that require detailed analysis. The BLM uses both internal and external scoping to identify potentially affected resources and associated issues. Internal scoping was conducted through meetings of an interdisciplinary team (IDT) of resource specialists and discussion of the proposed parcels. External scoping was conducted by posting online the proposed lease parcels and their stipulations from the Northeast (BLM 1986) and Royal Gorge Resource Area (BLM 1996) Resource Management Plans (RMPs) for 15 days from March 31, 2020, to April 14, 2020. Stipulation summaries, GIS shapefiles, and maps were posted on the BLM Colorado State Office website: <https://www.blm.gov/programs/energy-and-minerals/oil-and-gas/leasing/regional-lease-sales/colorado>.

This external scoping process gave the public an opportunity to comment on the proposed action, and the BLM considered and incorporated those comments into the EA as appropriate. As part of external scoping, the BLM sent notification letters with parcel listings, parcel maps, and (if requested) GIS shapefiles to representatives of selected federal agencies, tribal, state, county, and local governments. Chapter 4 of this EA lists the organizations receiving notification letters. The BLM also sent letters to surface owners whose land overlies federal minerals proposed for leasing. The BLM received 852 submissions (letters) during the scoping period, 90 percent of which were form letters (duplicates). These letters expressed concerns related to public involvement in the planning process, aquatic wildlife and water quality, air and climate, environmental toxins, public health and safety, wildlife and habitats, market conditions as they relate to drilling, cultural resources, and adherence to environmental laws.

1.4.2 Public Comment Period

The preliminary EA and the unsigned Finding of No Significant Impact (FONSI) for the September 2020 Oil and Gas Lease Sale were available for a 30-day public review and comment

period beginning May 13, 2020 and ending on June 15, 2020. The document was available online at <https://www.blm.gov/programs/energy-and-minerals/oil-and-gas/leasing/regional-lease-sales/colorado>. Hard copies were available from the field office by appointment by calling the following number: (719) 269-8740. Comments received from the public have been reviewed and incorporated into the EA as appropriate.

Issues Identified: The BLM received ten letters as a result of the public comment period. These letters provided the BLM with information on the concerns of the public. Concerns related to wildlife, water quality, air quality, hazardous materials, social cost of carbon, market conditions, NEPA, and policy and procedures. The BLM responses to these comments are included as Attachment F.

1.5 Issues Identified and Analyzed in the EA

The BLM considered external scoping comments in drafting the EA, and some issues raised in comments were carried forward for analysis. Some site-specific issues are more properly addressed in subsequent NEPA analysis if and when development on the potential leased areas is proposed.

Issue No.	Program Area	Issue Topic	Issue Statement	Brought Forward for Additional Analysis	Resource Specialist and Date
1	Biological Resources	Special Status Species	What impacts will leasing and development have on special status species and/or their habitat?	X	M. Rustand, 4/23/20
2	Biological Resources	Big Game Habitat and Raptor Nests	What impacts will leasing have on big game and raptor nesting?	X	M. Rustand 4/23/20
3	Biological Resources	Migratory Birds	What impacts will leasing have on migratory bird nesting and habitat?	X	M. Rustand 4/23/20
4	Air Resources	Local Air Quality Impacts	What is the potential effect of new emission sources that could be developed on the lease parcels on local air quality impact parameters including ozone, particulate matter, NO2 and HAP concentrations?	X	F. Cook 04/24/20
5	Air Resources	Air Quality Related Values and Regional Impacts	What is the potential effect of new emission sources that could be developed on the lease parcels on regional impact parameters, including haze formation and nitrogen deposition at nearby Class I areas, and regional ozone formation?	X	F. Cook 04/24/20
6	Air Resources	GHGs and Climate Change	What is the potential effect of new emission sources that could be developed on the lease parcels on global GHG emissions levels (and related climate change)?	X	F. Cook 04/24/20
7	Social and Economic Conditions	Local Impacts	What impacts will leasing and potential development have on social and economic conditions in Las Animas and Weld Counties?	X	Stillings 04/27/20
8	Social and Economic Conditions	Environmental Justice	Are there environmental justice populations that may be disproportionately adversely affected?	X	Stillings 04/27/20
9	Visual Resources Management	Visual Resources	What impacts will leasing and potential development have on the visual resource?	X	L. Skinner

Issue No.	Program Area	Issue Topic	Issue Statement	Brought Forward for Additional Analysis	Resource Specialist and Date
10	National Trails	National Trail	What impacts will leasing and potential development have on the Santa Fe National Trail?	X	L. Skinner

1.6 Issues Considered but Dismissed from Detailed Analysis

After review of available information, the interdisciplinary team determined that the issues in the table that follows did not have the potential to be significantly affected by any of the alternatives or were not necessary to make a reasoned choice between alternatives and therefore did not need further analysis.

Program Area	Issue Topic	Issue Statement	Further Analysis Determined Unnecessary	No Issue	Reason No Further Analysis Needed	Resource Specialist and Date
Aquatic Resources	Riparian Areas and Wetlands	How are leasing and potential development expected to affect riparian or wetland habitat?	X		Parcels that have the potential for riparian or wetland areas have stipulation CO-28 attached to protect these resources. This, in addition to standard lease terms, regulations, required stormwater permitting, and site-specific best management practices (BMPs) that would be applied at the APD stage, are expected to minimize or eliminate impacts to these resources, if these parcels are developed.	AR 4/23/2020
Aquatic Resources	Aquatic Wildlife	How are leasing and potential development expected to affect aquatic wildlife?	X		If parcels are leased and development is proposed, further analysis would take place at that point. Standard lease terms allow BLM to require moving proposed locations up to 200 meters to avoid impacts to resources at that point, along with the application of BMPs and design features. In addition, parcels with the potential for aquatic habitat have CO-28 stipulation attached. This, along with stormwater permitting requirements, is expected to minimize or eliminate impacts to aquatic species if development takes	AR 4/23/2020

Program Area	Issue Topic	Issue Statement	Further Analysis Determined Unnecessary	No Issue	Reason No Further Analysis Needed	Resource Specialist and Date
					place.	
Paleontological Resources		How will the Class III-IV and V paleontological resources present in the lease area be protected?	X		Paleontological resources will be evaluated at the APD stage, where COAs for management of such resources will be applied as necessary.	MJS 4/24/2020
Wastes, Hazardous or Solid		How will the storage and disposal of wastes (solid or hazardous) be addressed? How will potential spills of hazardous wastes be addressed?	X		Storage and disposal of wastes developed at the project level are evaluated at the APD stage. BLM requires compliance with applicable state and federal pollution control laws.	MJS 4/24/2020
Cultural Resources		Will the undertaking directly, indirectly, or cumulatively, and adversely, affect any historic properties present in the area of potential effects?	X		BLM conducted a literature review of records in the BLM-RGFO field office and database, and reviewed relevant information in the Compass database maintained by the Colorado Office of Archaeology and Historic Preservation (see report CR-RG- L). Because the leasing of parcels does not involve ground disturbance, it will have no adverse effect on historic properties. No historic properties of regional interest will be affected by the proposed undertaking.	MMW 4/27/20
Tribal		Will the undertaking affect phenomena with			A consultation with the	MMW 7/20/20

Program Area	Issue Topic	Issue Statement	Further Analysis Determined Unnecessary	No Issue	Reason No Further Analysis Needed	Resource Specialist and Date
Concerns		traditional or religious significance to tribes?			following potentially interested Native American tribes, for the undertaking, is in progress: Apache Tribe of Oklahoma, Cheyenne and Arapaho Tribes of Oklahoma, Cheyenne River Lakota Tribe, Comanche Tribe of Oklahoma, Crow Creek Sioux, Kiowa Tribe of Oklahoma, Northern Arapaho Tribe, Northern Cheyenne Tribe, Northern Ute Tribe, Oglala Lakota Tribe, Pawnee Tribe, Rosebud Sioux Tribe, Shoshone Tribe, Southern Ute Tribe, Standing Rock Sioux Tribe, and the Ute Mountain Ute Tribe. Many tribal offices are closed or operating at limited capacity due to the restrictions imposed by the ongoing COVID-19 pandemic. This has caused delays in consultation responses. Consultation is ongoing, and BLM will continue efforts to complete tribal consultation prior to issuing leases.	
Economics	Market Conditions	Do low energy market conditions and low development potential indicate BLM should not proceed with leasing?		X	Private industry business decisions regarding the acquisition and development of leases may be market-	AMS 4/27/20

Program Area	Issue Topic	Issue Statement	Further Analysis Determined Unnecessary	No Issue	Reason No Further Analysis Needed	Resource Specialist and Date
					driven, but BLM does not control those decisions. BLM considers parcels for potential leasing in accordance with the MLA, implementing regulations at 43 C.F.R. Part 3100, and agency policy. Receipt of an Expression of Interest indicates some industry interest in development of those lands.	
Planning & Environmental Analysis	Public Involvement	How will the BLM effectively involve the public in the NEPA planning process during the COVID-19 pandemic?		X	<p>The scoping period was the first opportunity for the public to comment on the proposed September 2020 competitive oil and gas lease sale. The public had another opportunity to provide feedback through the 30-day comment period.</p> <p>The BLM evaluates public comment periods and lease sales on a case-by-case basis. BLM completed its public involvement requirements for this oil and gas lease sale through the use of ePlanning publication and electronic submission of comments. These methods comply with stay-at-home orders and allow public participation without</p>	M. Lawrence, 4/27/2020

Program Area	Issue Topic	Issue Statement	Further Analysis Determined Unnecessary	No Issue	Reason No Further Analysis Needed	Resource Specialist and Date
					having direct contact with others.	
Geology/ Minerals	Mineral Resources	How will mineral resources be protected including surface and down hole oil and gas that are not targeted for production?	X		Mineral resources are evaluated at the APD stage.	J. Pike, 7/20/2020
Water Quality	Surface and Ground Water	How will leasing and development affect surface and groundwater quality?	X		At the APD stage, the BLM will review site specific engineering and geology information, and will require proper cementing and casing of wells to protect usable groundwater, per the BLM Onshore Order #2. BMPs and state stormwater regulations will be implemented to protect surface water quality.	J. Pike, 7/20/2020

Chapter 2 - Alternatives

2.1 Introduction

This chapter describes the alternatives analyzed in detail. Alternatives considered but not analyzed in detail are also discussed.

2.2 Alternatives Analyzed in Detail

2.2.1 No Action Alternative

Under the No Action Alternative, the BLM would defer all of the lease parcels in the Royal Gorge Field Office from the September 2020 lease sale. Surface management would remain the same and ongoing oil and gas development would continue on surrounding private, state, and federal leases. The deferred parcels could be considered for inclusion in future lease sales.

2.2.2 Preferred Alternative

Under the Preferred Alternative, the BLM would offer 43 parcels consisting of 67,004.000 acres for lease and defer no parcels and no acres from the sale. The lands have been grouped into appropriate lease parcels for competitive sale as oil and gas leases in accordance with 43 CFR 3100. The leases would include the standard lease terms and conditions for the development of the surface of oil and gas leases provided in 43 CFR 3100. Stipulations to protect other surface and subsurface resources would apply, as prescribed by the RMPs. Attachment C lists all parcels that would be offered for lease under the Preferred Alternative with applied stipulations. Attachment D contains descriptions of the applicable stipulations, and Attachment E contains maps of the parcels.

2.3 Alternatives Considered but Not Analyzed in Detail

The proposed alternative was removed from further consideration because leasing without application of the stipulations identified in the RMP to address specific resource issues is not in conformance with the RMPs.

The no-action and preferred alternative describes an appropriate range of alternatives for analysis. BLM can choose any combination of those alternatives (including deferral of additional parcels or portions of parcels) in the final leasing decision. BLM therefore has determined that no other alternatives are warranted.

2.4 Plan Conformance Review

The proposed action conforms (43 CFR 1610.5-3) with the following plans:

Name of Plan: Northeast Resource Management Plan and Record of Decision, as amended by the Colorado Oil and Gas Leasing and Development Final Environmental Impact Statement

Date Approved: 09/16/86, amended 12/06/91

Decision Language: “672,000 acres of BLM-administered mineral estate within the Northeast Planning Area are open to oil and gas leasing and development, subject to the lease terms and (as applicable) lease stipulations...”

Name of Plan: Royal Gorge Resource Area Record of Decision and Approved Resource Management Plan

Date Approved: May 1996

Decision Language: “BLM administered mineral estate will be open to fluid minerals leasing, exploration and production, subject to the lease terms and applicable lease stipulations...”

Under the proposed action, parcels to be offered would be leased subject to stipulations prescribed by the RMPs and associated amendments. Therefore, the proposed action conforms to the fluid mineral leasing decisions in the RMPs and is consistent with the RMPs’ goals and objectives for natural and cultural resources.

Chapter 3 – Affected Environment and Effects

3.1 Introduction

The Council on Environmental Quality (CEQ) Regulations state that NEPA documents “must concentrate on the issues that are truly significant to the action in question, rather than amassing needless detail” (40 CFR 1500.1(b)). Although many issues may arise during scoping, not all of the issues raised warrant analysis in an EA. Issues will be analyzed if 1) an analysis of the issue is necessary to make a reasoned choice between alternatives, or 2) if the issue is associated with a significant direct, indirect, or cumulative impact, or where analysis is necessary to determine the significance of the impacts.

3.2 Environmental Consequences of the No Action Alternative

The No Action Alternative is used as the baseline for comparison of the alternatives. Under the No Action Alternative, 43 parcels totaling 67,004.000 acres would not be leased. There would be no subsequent impacts from oil and/or gas construction, drilling, and production activities. The No Action Alternative would not affect the continuation of the current land and resource uses in the proposed lease areas.

The BLM assumes that the No Action Alternative (no lease option) may result in less oil and gas production than under the Preferred Alternative. This reduction would diminish federal and state royalty income and increase the potential for federal lands to be drained by wells on adjacent private or state lands. However, oil and gas production and consumption are driven by a variety of complex, interacting factors, including energy costs, energy efficiency, availability of other energy sources, economics, demographics, geopolitical circumstances, and weather; therefore, it is uncertain if and to what extent the No Action Alternative may affect overall domestic oil and gas production.

3.3 Past, Present and Reasonably Foreseeable Actions

NEPA requires federal agencies to consider the cumulative effects of proposals under their review. Cumulative effects are defined in the CEQ regulations, 40 CFR §1508.7, as “the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions (RFFA) regardless of what agency or person undertakes such other actions.” In its guidance, the CEQ has stated that the “cumulative effects analyses should be conducted on the scale of human communities, landscapes, watersheds, or airsheds” using the concept of “project impact zone” (i.e., the area that might be influenced by the proposed action).

Offering and issuing leases for the subject parcels would not contribute to cumulative impacts to any resource. Nevertheless, future development of the leases could result in indirect effects. The governing RMP EISs provide the BLM’s analysis of cumulative effects of oil and gas development based on the reasonably foreseeable oil and gas development (RFD) scenario at the time. This EA uses information from the most recent RFD scenario, which is incorporated by reference and is available online:

https://eplanning.blm.gov/epl-front-office/projects/lup/39877/160710/196486/RGFO_RFD_addendum.pdf

The cumulative impacts analysis area (CIAA) in the EISs accounted for the potential impacts of development of lease parcels in the planning area as well as past, present, and reasonably foreseeable actions known at that time. This EA expands upon the EIS's analysis by incorporating new information.

3.3.1 Past and Present Actions

There are no acres of BLM surface being considered for sale under the proposed action. All of the proposed parcels are split-estate, where the surface is not managed by the BLM, and the agency has very limited information about current uses. The BLM does not maintain information about non-mineral activity on split-estate parcels.

3.3.2 Reasonably Foreseeable Future Actions

The RFD scenario for the RGFO is an estimate of fluid mineral exploration, development, and production potential compiled for the field office for a 20-year period (2018–2037), based on information available at the time the RFD was written (BLM 2018). The table below shows the estimated RFD potential for the September 2020 parcels.

Parcel Number	Potential
8564	High
8563	High
8562	Moderate
8592–8604	Very Low
8576–8584	Very Low
8565	Very Low
8568–8570	Very Low
8572	Very Low
8573	Very Low
8566	Very Low
8567	Very Low
8571	Very Low
8575	Very Low
8574	Very Low
8585–8591	Very Low

Potential expressed in wells per township: Very High = > 200 wells; High = > 50–200 wells; Moderately High = 10–50 wells; Moderate = 5 to < 10 wells; Low = 1 to < 5 wells; Very Low = < 1 well.

The BLM does not know what the future holds for private surface activities. It is possible that the current practices on the private surface will continue.

3.4 Environmental Consequences of Leasing and Potential Development

The sale of parcels and issuance of oil and gas leases are administrative actions. Under the approved RMPs, stipulations are attached to mitigate any known environmental or resource conflicts that may occur on a proposed lease parcel. On-the-ground impacts would not occur until a lessee or its designated operator applies for and receives approval to undertake surface-disturbing lease actions. If the BLM receives an application for an exploration or development action, it will prepare additional NEPA analysis. At that time, BLM may apply additional impact minimization measures as COAs to moderate identified adverse effects beyond the protections provided by the lease stipulations (see Attachment D).

The BLM cannot meaningfully determine at the leasing stage whether, when, and in what manner and intensity a lease would be explored or developed. The uncertainty at the lease sale stage includes crucial factors that will affect potential impacts, such as well density, geological conditions, development type (vertical, directional, horizontal), hydrocarbon characteristics, equipment to be used during construction, drilling, production, and abandonment operations, and potential regulatory changes over the life of the 10-year primary lease term or beyond. Therefore, many discussions of potential direct, indirect, and cumulative impacts presented in the following resource or use-specific subsections are necessarily confined to qualitative rather than quantitative characterization.

3.4.1 Issue 1: Special Status Species

What impacts will leasing and development have on special status species and/or their habitat?

Affected Environment:

Lands considered in this action may be defined as shortgrass prairie ecosystems. Shortgrass ecosystems are dominated by two low-growing warm-season grasses: blue grama and buffalo grass. Western wheatgrass is also present, along with taller vegetation, including widespread prickly-pear cactus and yucca, and cholla in the south. Sandsage prairie is found where sandy soils occur and is dominated by sand sagebrush and the grasses sand bluestem and prairie sand-reed. Mixed grass (needle-and-thread, sideoats grama) and tallgrass (big bluestem, little bluestem, switchgrass) communities occur locally. Studies suggest that the shortgrass prairie ecosystem has declined to around 52 percent of its historic range (Samson et al. 2004).

Many sensitive species (black-tailed prairie dog, swift fox, Townsend's big eared bat, common kingsnake, milk snake, desert massasauga rattlesnake, Preble's meadow jumping mouse, long billed curlew, mountain plover, interior least tern, Brewer's sparrow, burrowing owl, ferruginous hawk, bald eagle, golden eagle, and American white pelican) have potential to occur in shortgrass prairie ecosystems and therefore on parcels available for leasing.

All proposed lease parcels are subject to lease stipulation Exhibit CO-34 to alert lessees of measures that the BLM may use to protect potential habitat for a threatened, endangered, candidate, or other special status plant or animal species. Protective measures for these species will be applied, if necessary, at the APD stage and may include the need to move development pads, enforce timing limitations, and enforce no surface occupancy restrictions. Additional NEPA

analysis will be completed as individual APDs are received for all the parcels identified in this document. Site-specific field visits will be conducted as deemed necessary for those parcels that contain federally listed and sensitive species habitat, and BLM will consult with the U.S. Fish and Wildlife Service (USFWS), as needed, in accordance with Section 7 of the Endangered Species Act.

Colorado Parks and Wildlife (CPW) designates certain wetland areas as aquatic habitat recovery and conservation waters. These designations are defined as reaches containing species under management for population conservation and recovery. These species may include fishes such as the Arkansas darter, brassy minnow, common shiner, flathead chub, plains minnow, northern and southern redbelly dace, Iowa darter, plains orange throat darter, suckermouth minnow, and plains topminnow as well as amphibian species such as the northern leopard frog and plains leopard frog. All of these are designated by CPW as species of conservation concern or having special status.

Several special status species may occur within the proposed action area. Black-tailed prairie dogs are small burrowing rodents that primarily occur in scattered colonies throughout the Eastern Plains of Colorado. Recent survey results suggest that statewide, approximately 631,000 acres of black-tailed prairie dog habitat are occupied compared to an estimated 100-200 million acres historically (USFWS 2000). Black-tailed prairie dogs are known to substantially alter the landscape through burrowing activity, and in some cases, they are responsible for creating habitat for mutualistic species such as the borrowing owl and mountain plover (George 2003). Kotliar et al. (1999) suggest that black-tailed prairie dog colonies are associated with many other species, including the ferruginous hawk, golden eagle, and swift fox, which are listed as being sensitive or having populations of concern.

Swift foxes primarily occur within the shortgrass and mixed grass prairie on the Eastern Plains of Colorado and are listed as a state species of special concern by CPW. It is believed that Colorado may hold the largest remaining population of swift foxes of any state due to the state's abundance of shortgrass prairie ecosystems (Finley et al. 2005). Swift foxes are a denning species, and dens often occur in ridges, slopes, hill tops, pastures, roadside ditches, fence rows, and cultivated fields adjacent to food sources such as black-tailed prairie dog colonies. The distribution of the swift fox is estimated at about 40 percent of its historic range (Kahn et al. 1997).

The Townsend's big-eared bat occurs in Colorado and throughout the west. Habitat associations include coniferous forests, deserts, native prairies, riparian communities, and agricultural areas. Distribution is strongly correlated with the availability of caves and cave-like roosting habitat, with population centers occurring in areas dominated by exposed, cavity forming rock and/or historic mining districts (Fellers and Pierson 2002). Townsend's bats feed on a variety of flying arthropods, such as moths, beetles, flies, and wasps, usually hunting along the edges of vegetation lines and habitat transitions (Fellers and Pierson 2002). Many bat species, especially cave-roosting or colony-forming bats like the Townsend's bat, are at risk of extreme population decline or local extinction due to white nose syndrome (Blehert et al. 2009).

The common kingsnake has been found near irrigated fields on the floodplain of the Arkansas River, in rural residential areas in plains grassland, near stream courses, and in other areas dominated by shortgrass prairie. Periods of inactivity are spent in burrows and logs, in or under old buildings, in other underground spaces, or beneath various types of cover. Known from a few locations in southeastern Colorado (north to the vicinity of the Arkansas River) and a few sites in

extreme southwestern Colorado (western Montezuma County), at elevations below 5,200 feet, the species is generally difficult to find but may be common locally due to its restricted range in Colorado. Population declines in recent years have been attributed to habitat loss (Winne et al. 2007).

The milk snake occupies a wide variety of habitats in Colorado, including shortgrass prairie, sandhills, shrubby hillsides, canyons and open stands of ponderosa pine with Gambel oak in the foothills, pinyon-juniper woodlands, arid river valleys, and abandoned mines. Generally feeding on small mammals and reptiles (Hamilton et al. 2012), milk snakes are active at night and may be found under cover such as discarded railroad ties in sandhill regions during the day. Hibernation sites include rock crevices that may be shared with other snake species. The species occurs throughout most of Colorado at elevations below 8,000 feet and is generally scarce.

Desert massasauga rattlesnake habitat in Colorado consists of dry plains grassland and sandhill areas common to the shortgrass prairie ecotype. In southeastern Colorado, this species occurs at elevations below 5,500 feet. Desert massasauga rattlesnakes appear to be highly dependent on specific habitat types, during different times of the year. This snake species has been shown to migrate a mean distance of 1.89 km from winter hibernacula to summer foraging grounds (Wastell and Mackessy 2011), making it particularly susceptible to death from anthropogenic factors such as road construction. Populations have declined across North America due to habitat loss. The desert massasauga rattlesnake is known to occur in portions of Baca and Lincoln Counties, but may occur elsewhere (Mackessy 2007). The species is currently under review for listing by USFWS under ESA.

Preble's meadow jumping mouse is a federally threatened species generally found within the North Platte, South Platte, and Arkansas River drainages of Colorado and Wyoming (USFWS 2008). This species inhabits heavily vegetated, shrub-dominated riparian habitats and immediately adjacent undisturbed grassland communities up to 100 meters beyond the 100-year floodplain. Critical habitat has been designated, although these areas are generally along the foothills of the Colorado Front Range (USFWS 2013). The proposed action location is within the mapped overall range for Preble's meadow jumping mouse (Colorado Parks and Wildlife 2017).

Long-billed curlew is the largest North American shorebird. Although rarely observed far from water, these birds are considered a grassland species, as they forage in open prairies or agricultural fields that are often adjacent to water in areas that contain wet soils (Fellows and Jones 2009). In Colorado, they are usually associated with ponds, reservoirs, playas, and wet meadows but do not typically nest in agricultural fields.

Mountain plovers are found throughout the RGFO in suitable habitats and are listed as a state species of special concern by CPW. While the species is relatively rare, they can generally be found in open, flat tablelands that display some function of disturbances such as agricultural production, drought, grazing, fire, or near prairie dog colonies. (Knopf and Miller 1994; Kotliar et al. 1999). Mountain plover nesting occurs at or near ground level, and young plovers often forage along habitat edges, such as boundaries or roads.

The Brewer's sparrow breeds primarily in sagebrush shrublands but will also nest in other shrublands such as mountain mahogany or rabbitbrush. While migrating, the species will occupy wooded, brushy and weedy riparian, agricultural, and urban areas. They are locally uncommon to common on the Eastern Plains and lower foothills of Colorado.

The burrowing owl is closely associated with active prairie dog colonies throughout its range (Kotliar et al. 1999) and is more likely to inhabit active colonies than inactive ones (Desmond et al. 2000). Burrowing owls require a mammal burrow or natural cavity surrounded by sparse vegetation for nesting. Burrow availability is often limiting in areas lacking colonial burrowing rodents. Burrowing owls frequently use burrows of black-tailed prairie dogs; however, they will nest less commonly in the burrows of Gunnison's prairie dogs, skunks, foxes, and coyotes.

The ferruginous hawk inhabits open grasslands and shrub steppe communities (Dechant et al. 2002) and is rare in pinyon-juniper woodlands. Ferruginous hawks are typically winter residents on the Eastern Plains but may nest in this area on occasion, generally on the ground or on small outcroppings within 8 km of prairie dog towns (Roth and Marzluff 1989). Winter residents are known to concentrate around prairie dog towns, and winter numbers and distribution fluctuate greatly according to the availability of prairie dogs. Migrants and winter residents may also occur in shrublands and agricultural areas but have been shown to prefer native grasslands (Dechant et al. 2002).

Bald eagles in Colorado typically nest in large cottonwood trees along rivers and reservoirs. Eagle densities reach their peak during the winter months when migrants arrive from the north (Harmata 2002). The bald eagle is a common winter (December through March) visitor to RFGO. Bald eagle usage (winter roosting, nesting, etc.) occurs near several major riparian areas and reservoirs on the Eastern Plains, and occupancy is highly correlated with the presence of water.

Golden eagle populations in Colorado occupy a variety of habitats ranging from grasslands and shrublands to forested woodlands. Nesting occurs on cliffs or in trees, but birds will range widely over surrounding habitats. The golden eagle's tendencies to travel great distances are thought to be driven by foraging opportunities, and pre-breeding age eagles are known to disperse large distances and use a variety of habitat types (Collopy et al. 2017).

Direct and Indirect Impacts:

The act of leasing parcels for oil and gas development would have no direct impact on wildlife resources. However, the authorization to lease parcels for oil and gas development will likely result in future development at some locations. The magnitude and location of potential development, and in turn, its potential to affect listed species or their critical habitat, cannot be determined until the site-specific APD stage. At this time, the BLM does not have specific details about future development; therefore, specific impacts to special status species from development remain unknown. However, pursuant to lease stipulation Exhibit CO-34, all proposed lease parcels are subject to measures that the BLM may take to protect potential habitat for a threatened, endangered, candidate, or other special status plant or animal species. Some generalized potential effects of lease development are described below.

Black-tailed prairie dog: Many areas within the range of black-tailed prairie dogs have been classified as valuable for oil and gas development. Possible direct negative impacts associated with oil and gas development include the local degradation of prairie dog habitat by clearing and crushing of vegetation, reduction in available habitat due to pad construction, road development and well operation, displacement and killing of animals, alteration of surface water drainage, and increased compaction of soils. Indirect effects include increased access into remote areas by shooters and OHV users. Gordon et al. (2003) found that shooting pressure was greatest at colonies with easy road access compared to more remote colonies.

Swift fox and swift fox potential denning habitat: Oil and natural gas exploration fragments existing grassland habitat and increases road traffic and access by humans. Impacts of this type of disturbance on swift foxes are unknown, but both positive and negative effects may be expected. Increased road density may offer more foraging opportunities for swift foxes. However, loss and fragmentation of local habitat, increased mortality due to vehicle collisions, trapping, and accidental shooting may also result (Carbyn et al. 1994). Habitat fragmentation is generally regarded as being detrimental to species and their ecological interactions (Fahrig 2003). While current denning sites are unknown, mapped potential denning habitat occurs within some proposed lease parcels (8562, 8563, and 8564) and is designated as the priority habitat for the species by CPW. Disruption of den sites due to development activity at the APD stage is possible, which would likely result in the abandonment of den sites. Therefore, mitigation measures (surveys to locate active den sites, timing limitations, and human encroachment limitations) will be performed at the APD stage.

Townsend's big eared bat: It is unlikely that the proposed lease parcels offer habitat suitable for hibernation or rearing of young Townsend's big-eared bats. Roosting bats may be subject to localized disturbance from development activity and long-term impacts from reductions in the extent of mature woodland stands as sources of roost substrate. Construction of roads and drill pads have the potential to negatively impact bat activity. This species is very sensitive to disturbance events and has been documented to abandon roost sites after human visitation. If hibernating bats are disturbed or awoken during hibernation, they may suffer mortality due to the premature depletion of energy stores (Thomas 1995; Boyles 2017). Studies have shown that motorized vehicles can disturb bat species up to 5 km (~3.11 miles) away from the source of the noise, with major negative effects on bats occurring within 1 km (0.62 miles) of the source (Claireau et al. 2019). In addition, Berthinussen and Altringham (2012) found that bat activity was 3.5 times higher 1,600 m (1 mile) away from a road compared to near the road. Additionally, a trophic cascade may result from the loss of vegetation due to drill pad and road construction resulting in lowered arthropod prey densities, and therefore less food for foraging Townsend's bats.

Reptile species (common kingsnake, milksnake, and desert massasauga rattlesnake): Direct effects to the BLM sensitive reptile species could include injury or mortality as a result of construction, production, and maintenance activities. These effects would most likely occur during the active season for these species, which is generally April to October. Particularly, migrating desert massasauga rattlesnakes may be at risk as they travel from their winter hibernacula to their summer foraging grounds (Wastell and Mackessy 2011). Indirect effects of lease development on these reptile species could include a greater susceptibility to predation if roads or pads are used to aid in temperature regulation.

Preble's meadow jumping mouse: Effects of energy development on the Preble's meadow jumping mouse may include direct mortality from heavy equipment and increased mortality from vehicles due to the construction of roadways in conjunction with the project, and indirect negative effects due to habitat loss and increased exposure may also occur. Since USFWS (2008) suggests that the mouse primarily uses riparian habitat, areas near streams and drainages should be avoided by developers when considering drill pad and road locations to minimize impacts. At this stage of the project, it is not possible to determine the exact effects of project development on the Preble's meadow jumping mouse. Site-specific field visits will be conducted as deemed necessary for those parcels that contain mapped Preble's mouse habitat, and the BLM will consult with the U.S. Fish

and Wildlife Service, as needed, in accordance with Section 7 of the Endangered Species Act, at that time.

Mountain plover and mountain plover potential nesting sites: Mountain plovers nest on nearly level ground (often near roads). Adults and chicks often feed on or near roads, and roads may be used as travel corridors by mountain plovers. These factors make plovers susceptible to being killed by vehicles. Therefore, as oil and gas infrastructure are developed and used, the probability of plover mortality or nest destruction will likely increase locally. While nesting locations are currently unknown, mapped potential nesting habitat occurs within some proposed parcels (8565, 8566, 8568, 8569, 8570, 8571, 8572, 8573, 8574, 8575, 8562, 8563, and 8564) and is the priority habitat for the species as designated by CPW. Mitigation (plover nesting survey, timing limitations, etc.) to prevent mortality will be identified at the APD planning stage.

Migratory birds, including Brewer's sparrow and long-billed curlew, may be burned or killed by exhaust vents, heater-treaters, flare stacks, etc., if perched at the opening while in operation. An increase in site activity (i.e., road traffic) will likely result in an increase in vehicular collisions with migratory birds. If leases are developed, surface-disturbing activities such as road building or pad and pipeline construction will destroy existing habitat. If surface-disturbing activities occur during the nesting season, destruction of nests may occur. Noise and human activity generated during construction, drilling, and production phases will likely result in a larger impact footprint than the disturbance footprint alone. However, mitigation proposed in the migratory bird section (Issue 3) will be adequate to protect the Brewer's sparrow and long-billed curlew.

Burrowing owl: Since burrowing owls are highly dependent on prairie dog colonies (Kotliar et al. 1999), the primary impact to owls from developing leases would be from the potential loss of habitat or the disruption of a nest site if development were to occur within an active prairie dog colony. In addition, raptors are protected by a suite of stipulations (CO-03; CO-18) that require no surface occupancy within one-eighth of a mile of nests and a timing limitation to protect raptor nesting and fledgling habitat.

Ferruginous hawk: Ferruginous hawks will construct nests upon oil and gas-related structures. However, these nests are less successful than nests built upon natural structures due to repeated human visitation. While the footprint of individual oil and gas wells is minimal relative to other energy developments, the total habitat lost to the network of wells and connecting roads can be considerable in areas undergoing full-field development. The potential for oil and gas-related disturbance of nesting, foraging, or roosting raptors arises not only from new well installation activities, including road and pad construction, drilling, and equipment installation over the course of several weeks to months, but also from continual servicing and maintenance of wells over their production lifetime. Raptors are protected by a suite of stipulations (CO-03, CO-18, and CO-19) that require no surface occupancy within one-eighth of a mile of nests and a timing limitation to protect raptor nesting and fledgling habitat.

Bald eagle: Bald eagle foraging and nesting is dispersed and opportunistic across the entire RGFO area, with most activity centered near major riparian and reservoir areas. Surface-disturbing activities that have potential to disrupt important bald eagle seasonal use activities are subject to NSO and TL provisions (CO-03; CO-18) to protect raptor nesting and fledgling habitat.

Golden eagle: Golden eagles are a wide-ranging species that is dispersed across the entire RGFO area. Surface-disturbing activities that have potential to disrupt golden eagle nesting activity are

subject to NSO and TL provisions (CO-03; CO-18) established in the applicable resource management plans to protect raptor nesting and fledgling habitat. These stipulations have been successful in protecting ongoing nest efforts and maintaining the long-term utility of nest sites in the resource area.

Cumulative Impacts:

Throughout the lease area, many ongoing activities, along with historic impacts, affect wildlife resources. These activities include oil and gas development, residential development, grazing, agriculture, mining, and recreation. While the leasing of parcels will not compound these impacts, future oil and gas development may impose deleterious effects. Every parcel is unique, and site-specific impacts will be considered as part of the cumulative impacts analysis at the development stage.

Potential Future Mitigation:

A potential condition of approval that could be applied at the development phase would require operators to conduct a survey for federally listed and BLM sensitive species where potential habitat exists prior to development. If these species or key habitat features are located, BLM may implement timing limitations and/or spatial buffers to mitigate conflicts consistent with the Royal Gorge Resource Management Plan, Northeast Resource Management Plan, and 43 C.F.R. § 3101.1-2).

If development is to occur within parcels containing riparian and wetland communities that are designated as aquatic habitat recovery and conservation waters, and proposed development sites are in or near these communities, a no surface disturbance buffer of 300 feet extending from the outermost limit of the riparian or wetland zone will be recommended.

If development is to occur from April 1 through August 15, a survey for nesting mountain plover will be required where habitat exists. A no surface disturbance buffer of 300 feet will be placed around identified active nest sites.

If development is to occur from April 1 through July 31, a survey for nesting interior least tern will be required where habitat exists. A no surface disturbance buffer of 300 feet will be placed around identified active nest sites.

If development is to occur from March 15 through June 15 in high-quality swift fox habitat, a survey for active swift fox den sites will be required. If active den sites are identified, a 0.25-mile no surface disturbance, human encroachment, or construction activity buffer will be placed around dens.

The BLM manages habitat for migratory birds and raptors, including golden eagles, ferruginous hawks, and burrowing owls. Therefore, raptor nest surveys will be conducted within a 0.5-mile radius (Colorado Parks and Wildlife recommended golden eagle buffer) of future project sites. Raptor nests located by survey efforts will be protected by species-appropriate, no surface disturbance buffers and timing limitations approved by existing resource management plans. As a potential condition of approval, if a ferruginous hawk constructs a nest upon any oil and gas-related platforms (e.g., tanks), the BLM will be notified, an alternative nesting structure will be constructed, and the nest moved to the alternate structure at the expense of the lessee. However,

the BLM has the flexibility to move development up to 200 meters to mitigate direct impacts, or farther based on site-specific analysis.

The BLM may require an operator to move an operation and delay activities to protect valuable wildlife resources, if supported by the site-specific NEPA analysis for the development activity at the APD stage.

In addition, the BLM may require relocation of proposed surface-disturbing activity up to 200 meters, or more if supported by analysis, to protect BLM sensitive plant species.

3.4.2 Issue 2: Big Game Habitat and Raptor Nesting

What impacts will leasing have on big game habitat and raptor nesting?

Affected Environment:

CPW has designated priority habitat types (e.g., winter range; calving/fawning/lambing areas) for big game species throughout the action area. The winter range of a species is defined as the subset of the overall species range where 90 percent of individuals reside, on average, over 5 of 10 previous winters from the first heavy snowfall until spring green-up. Winter range may also be defined by a site-specific period of winter as defined for each local data analysis unit. Portions of the proposed lease areas encompass pronghorn winter range, the priority habitat type for the species.

Big game animals generally migrate to lower elevations during winter months to access food, cover, and shelter from cold temperatures and snow accumulation (Webb et al. 2013), and pronghorn antelope are known to migrate hundreds of kilometers to access favorable winter range conditions (Collins 2016). Winter range is an important factor when considering big game management, as it has been shown to have the potential to impact population dynamics through altering survival and reproduction (Sawyer et al. 2006). Due to the difficult conditions big game species such as pronghorn are faced with in winter, such as food limitation and increased energy expenditures, they rely heavily on winter range for survival (Taylor et al. 2016). Additionally, the winter range component usually comprises a small percentage of overall big game home ranges and may be a limiting factor for populations in this regard (Watkins et al. 2007). Therefore, changes to winter range have high potential to impact big game populations due to its relative scarcity and its importance to survival and reproduction (Collins 2016; Webb et al. 2013; Taylor et al. 2016).

Few raptor nest locations are known within the proposed lease parcels for two primary reasons: lack of information and the fact that the parcels are located on privately owned surface. Lease stipulations attached to each parcel would necessitate raptor nest surveys in order to locate and maintain site characteristics of existing nests. Additionally, timing limitations will reduce disruption of adult attendance at each known occupied nest location.

Several parcels are located within Colorado Natural Heritage Program (CNHP) Potential Conservation Areas (PCAs). A PCA may include a single occurrence of a rare element or a suite of rare elements or significant features. The goal is to identify a land area that can provide the habitat and ecological processes upon which a particular element or suite of elements depends for their continued existence. The best available knowledge of each species' life history is used in conjunction with information about topographic, geomorphic, and hydrologic features, vegetative

cover, as well as current and potential land uses. The proposed boundary does not automatically exclude all activity. Specific activities or land use changes proposed within or adjacent to the preliminary conservation planning boundary should be carefully considered and evaluated for their consequences to the element on which the conservation unit is based.

Direct and Indirect Impacts:

In the Proposed Alternative, the act of leasing the parcels for oil and gas development would have no direct impact on wildlife resources; however, activities at the development stage could have impacts on wildlife. The magnitude and location of direct and indirect effects cannot be predicted until the site-specific development stage; therefore, specific impacts to terrestrial wildlife caused by potential future development cannot be analyzed with accuracy prior to leasing. If a parcel is leased and development occurs, impacts likely to occur will be habitat loss and fragmentation due to well pad construction and road construction and/or avoidance of preferred habitat due to human presence, noise from drilling and production facilities, and increased road density and traffic.

Researchers have reported avoidance distances of pronghorn varying from 0.25 mi (Autenrieth 1983) to 0.6 mi (Easterly et al. 1992) from sources of disturbance. Based on a radio telemetry study in the Pinedale Anticline of Western Wyoming, Berger et al. (2006) determined pronghorn avoided denser well fields associated with significant activity. Pronghorn consistently avoided areas within 100 m of natural gas well pads. During a 15-year, 171-animal radio collar study assessing the effects of energy development on pronghorn movement patterns and habitat use in the Greater Yellowstone Ecosystem, Sawyer et al. (2019) found that pronghorn increased avoidance distances from well pads by an average of 408 m, with the final year of the study seeing an increased avoidance distance of 800 m. Additionally, Sawyer notes that the time pronghorn spent in the study area near well pads decreased by 22 percent (about one month) over the 15-year study, and the percentage of pronghorn leaving the study area increased by 52 percent. Sawyer (2019) concludes that these metrics indicate that pronghorn response to energy development involved avoidance of infrastructure and partial abandonment of their winter range.

These findings are problematic for the survival of pronghorn herds near energy development that takes place near their winter range, due to the dependence of pronghorn on this habitat type for survival (Taylor et al. 2016). Additionally, detrimental effects of energy development have the potential to be compounded in years of harsh winter conditions (low temperatures and heavy snow loads), because pronghorn are more likely to migrate to and rely on winter ranges in these years (Collins 2016). Portions of lease parcels in this proposal encompass pronghorn antelope winter range and are therefore subject to the lease stipulation Exhibit CO-09 to protect pronghorn winter habitat. However, at this time, it is not possible to determine the effects of development due to the specific locations being unknown. Lessees should consider the presence of the pronghorn winter range habitat when proposing specific drill site locations. Exact More specific effects of development on pronghorn winter habitat will be determined in the APD stage.

For bighorn sheep, studies have shown avoidance of habitats disturbed by construction, road development, vehicle traffic, and impacts from aircraft over flights (Hebblewhite 2008). A summary of ungulates in Montana reported that, of all the ungulate species studied, bighorn sheep appear to be the most vulnerable to impacts from human disturbance (Canfield et al. 1999). In southern Las Animas County, the 40 proposed parcels in this sale cover 65,660 acres and include some overlap with production areas and important winter habitat for Rocky Mountain bighorn sheep. These bighorn sheep inhabit an area that has unique

geographical features, has experienced minimal development, and contains large tracts of undisturbed habitat. In particular Purgatoire Canyon and Chacuaco Canyon provide high quality habitat for bighorn sheep, and the area where the two canyons converge supports one of the largest herds in Colorado. Therefore, these leases will be subject to the lease stipulations Exhibit CO-09 and CO-12 to mitigate impacts to these areas.

Raptors are protected by a combination of “no surface occupancy” and “timing limitation” stipulations attached to leases to reduce adverse effects of potential oil and gas development. Lease parcels in this proposal are subject to Exhibits CO-03 and CO-18 to protect raptor nest sites and raptor nesting and fledgling habitat. This control method allows the protection of known active nest sites during the APD phase. While the footprint of individual wells is minimal, the functional habitat lost to the network of wells and connecting roads can be considerable. The potential for oil and gas-related disturbances of nesting, foraging and roosting raptors arises from new well installation activities, including road and pad construction, drilling, and equipment installation over the course of several weeks to months. In addition, continual servicing and maintenance of wells over their productive lifetime may cause a habitat avoidance response over the long-term.

Several lease parcels are located within PCAs; however, the Northeast and Royal Gorge RMPs contain a suite of stipulations that will protect the elements outlined in each PCA in the event that leased parcels are eventually developed. Site-specific issues may be addressed as conditions of approval at the APD stage.

Cumulative Impacts:

Throughout the lease area, there are many activities currently occurring, along with historic impacts, which affect wildlife resources. These activities include oil and gas development, residential development, grazing, agriculture, mining and recreation. While the leasing of parcels will not compound these impacts, future oil and gas development may impose deleterious effects. Every parcel is unique, and site-specific impacts will be considered as part of cumulative impacts analysis at the development stage.

Potential Future Mitigation:

A Master Development Plan may be completed for the proposed parcels in southern Las Animas County that overlap with production areas and important winter habitat for Rocky Mountain bighorn sheep prior to initiating new disturbance, in order to consolidate facilities and manage well pad and road densities in bighorn sheep occupied range within the leased area.

Because of the lack of raptor nesting information, a standard COA would request a raptor nest survey where habitat existed. If a nest were found, the attached stipulations would require the lessee to maintain the integrity of site characteristics for existing nests. Additionally, timing limitations will reduce disruption of adult attendance at each known occupied nest location.

Additionally, a biological inventory may be requested to gather baseline information, and the BLM may require an operator to move an operation and/or delay development activity to protect valuable wildlife resources if supported by inventories and site-specific NEPA analysis for the development activity.

3.4.3 Issue 3: Migratory Birds

What impacts will leasing have on migratory bird nesting and habitat?

Affected Environment:

The dominant habitat in this physiographic area is shortgrass prairie. Shortgrass is dominated by two low-growing warm-season grasses: blue grama and buffalo grass. Western wheatgrass is also present, along with taller vegetation, including widespread prickly-pear cactus and yucca, and cholla in the south. Sandsage prairie is found where sandy soils occur and is dominated by sand sagebrush and the grasses sand bluestem and prairie sand-reed. Mixed grass (needle-and-thread; sideoats grama) and tallgrass (big bluestem; little bluestem; switchgrass) communities occur locally.

The following birds are listed on the USFWS Birds of Conservation Concern (BCC) – 2008 List for BCR 16-Southern Rockies/Colorado Plateau and BCR 18-Shortgrass Prairie and may occur within the proposed lease area: mountain plover, upland sandpiper, Bell's vireo, Sprague's pipit, lark bunting, McCown's longspur, chestnut-collared longspur, grasshopper sparrow, northern harrier, and prairie falcon. These species have been identified as birds that may be found in the project area, have declining populations, and should be protected from habitat alterations.

Direct and Indirect Impacts:

Leasing will have no impact on individual migratory birds, populations, or habitat. If leases are developed, surface-disturbing activities, such as road building or pad and pipeline construction, will destroy existing habitat. If surface-disturbing activities occur during the nesting season, destruction of nests may occur. Noise and human activity generated during construction, drilling, and production phases will likely result in a larger impact footprint than the disturbance footprint alone.

Migratory birds may be burned, entrapped, and/or killed by exhaust vents, heater-treaters, flare stacks, and open pipes, etc., as a result of development-related infrastructure. An increase in activity (i.e., road traffic) will likely result in an increase in vehicular collisions with migratory birds. Disturbance to migratory birds that result from close encounters with humans and cause a flight reaction may cause nest abandonment, decline in parental care, increased stress, shortened feeding times, and potentially lower reproductive success (Larson et al. 2019).

Habitat fragmentation is defined as both the loss of habitat and the breaking apart of habitat into smaller units (Fahrig 2003). In theory, large pieces of habitat support a higher number of species when compared to smaller pieces (Higgs 1981; Fahrig 2003). In a large meta-analysis of the effects of habitat fragmentation on birds, Bregman et al. (2014) found that seed-dispersing and insectivorous birds were most negatively affected by habitat fragmentation.

Appropriate lease stipulations to protect some migratory birds and their habitats were attached to parcels and described in Attachments A and C. Furthermore, at the field development and APD stage, it is standard procedure to include a COA on all APDs to mitigate impacts to migratory birds. The COA will ensure that operators take measures to prevent destruction of nests and effectively preclude migratory bird access to, or contact with, reserve pit contents that possess toxic properties (i.e., through ingestion or exposure) or have the potential to compromise the

water-repellent properties of birds' plumage, or other harmful conditions associated with development.

Cumulative Impacts:

Throughout the lease area there may be many activities currently occurring, along with historic impacts, which affect migratory bird species. These activities could include oil and gas development, residential development, grazing, agriculture, mining, and recreation. In areas where human development previously modified the natural environment (i.e., agricultural; settlement; past oil and gas development), it is likely that migratory bird species richness and diversity were compromised. New oil and gas development will likely cause an additive negative impact on most species of migratory birds currently present at the site. While the leasing of parcels will not compound these impacts, future oil and gas development may impose deleterious effects. Every parcel is unique, and site-specific impacts will be considered as part of cumulative analysis at the development stage.

Potential Future Mitigation:

Pursuant to the BLM Instruction Memorandum 2008-050, to reduce impacts to Birds of Conservation Concern, no habitat disturbance (removal of vegetation such as timber, brush, or grass) may be authorized May 15–July 15, the breeding and brood-rearing season for most Colorado migratory birds. The restriction does not apply to completion activities in disturbed areas that were initiated prior to May 15 and continue into the 60-day period.

An exception to this timing limitation may be granted if nesting surveys conducted no more than one week prior to vegetation-disturbing activities indicate no nesting within 30 meters (100 feet) of the area to be disturbed. Surveys shall be conducted by a qualified breeding bird surveyor between sunrise and 10:00 a.m. under favorable conditions.

Any secondary containment system will be covered in a manner to prevent access by migratory birds. The operator will construct, modify, equip, and maintain all open-vent exhaust stacks or pipes on production equipment to prevent birds and bats from entering and to discourage perching, roosting, and nesting. Production equipment includes, but may not be limited to, tanks, heater-treaters, separators, dehydrators, flare stacks, and in-line units.

Additionally, standard lease terms and conditions, which allow the BLM to move an operation up to 200 meters and delay operations for up to 60 days, may be implemented to protect valuable wildlife resources. The BLM may further limit the timing of operations or relocate them to a greater degree if supported by appropriate analysis.

3.4.4 Issue 4: Local Air Quality Impacts

What is the potential effect of new emission sources that could be developed on the lease parcels on local air quality impact parameters including ozone, particulate matter, NO₂ and HAPs concentrations?

Data from the current version of the BLM Colorado's Annual Report for Air Resources (Annual Report 2.0) is incorporated by reference in this analysis to provide information for the affected environment and cumulative impacts analysis. Annual Report 2.0 is available to the public on

BLM Colorado's website: <https://www.blm.gov/programs/natural-resources/soil-air-water/air/colorado>.

Affected Environment:

General Climate:

The RGFO encompasses a large geographical area with an appreciable amount of daily meteorological and climatic variance. Frequent winds and limited topographical influences in the majority of the RGFO provide excellent dispersion characteristics for distributing anthropogenic emissions. More climate information can be found in the "Climate Statistics and Change Analysis" section (Section 6.0) of the online Annual Report 2.0.

Air Quality Standards, and Local Air Pollutant Concentrations and Emission Sources:

Analysis indicators related to air quality can be described in terms of air pollutant and airshed classes, standards, and concentrations. Section 2.0 (Affected Environment) of Annual Report 2.0 provides detailed information for this section. This section of the Annual Report 2.0 includes information about regulations specific to oil and gas emission sources, and current emission inventories for areas within the RGFO near the lease parcels.

Air quality in the majority of the RGFO meets the standards; however, in certain areas of the field office, measurements of pollutants have either exceeded or violated an air quality standard. Historically, these problem areas have centered around the larger Front Range metropolitan areas that tend to have large amounts of pollutant-emitting sources and activities. The RGFO currently has five areas that have a designation other than attainment/unclassifiable: the Denver Metro Area / Northern Front Range 8-hour ozone (O₃) Non-Attainment Area (NAA), the Colorado Springs Carbon Monoxide (CO) Maintenance Area, and the Denver, Canon City, and Larimer Co. PM₁₀ Maintenance Areas. In these areas, the state applies more stringent air pollution control requirements. None of the proposed parcels are located within the Denver Metro Area / Northern Front Range 8-hour O₃ Non-Attainment Area or any maintenance area; however, three of the parcels are in the Pawnee National Grassland (NG) just north of the O₃ NAA.

Environmental Consequences of Leasing and Development—Direct and Indirect Impacts:

The decision to offer the identified parcels for lease would not result in any direct emissions of air pollutants. However, any future development of these leases would result in emissions of criteria, VOC, HAP, and GHG pollutants. Subsequent development would result in both short- and longer-term emissions of pollutants, including GHGs. Development-stage air impacts will be examined in a subsequent analysis when lessees file an APD. The analysis will evaluate if any contemporaneous incremental increases from project emissions would be expected to cause significant impacts at the local and regional scales. All proposed activities including, but not limited to, exploratory drilling activities would be subject to applicable state and federal air quality laws and regulations.

Subsequent activity authorized after APD approval could include soil disturbances resulting from the construction of well pads, access roads, pipelines, power lines, and drilling. Any disturbance is expected to cause increases in fugitive dust and potentially inhalable particulate matter (specifically PM₁₀ and PM_{2.5}) in the project area and immediate vicinity. Particulate matter,

mainly dust, may become airborne when drill rigs and other vehicles travel on dirt roads to drilling locations. Air quality may also be affected by exhaust emissions from engines used for drilling, transportation, gas processing, compression for transport in pipelines, and other uses.

These sources will contribute to potential short- and longer-term increases in the following criteria pollutants: carbon monoxide, ozone (a secondary pollutant, formed via photochemical reactions between VOC and NO_x emissions), nitrogen dioxide, and sulfur dioxide. Non-criteria pollutants (for which no national standards have been set) such as carbon dioxide, methane, and nitrous oxide (GHGs), air toxics (e.g., benzene), and total suspended particulates (TSP), as well as impacts to visibility and atmospheric deposition may also increase as a result of exploration and development.

During exploration and development, “gas” may at times be flared and/or vented from conventional, coal bed methane, and shale wells (depending on the resources present on the lease). The gas is likely to contain volatile organic compounds that could also be emitted from reserve pits, produced water disposal facilities, and/or tanks located at the site. The development stage may include the installation of pipelines for transportation of raw product. New centralized collection, distribution, and/or gas processing facilities may also be necessary.

Typical Emissions for New O&G Wells:

For this assessment, the BLM uses an estimated average per-well emissions inventory that is based on eleven (11) actual recent oil and gas projects (2017–2018) in areas near the parcels proposed for lease. The emissions inventory reflects an estimate of potential indirect impacts of leasing the proposed parcels, if developed in the future. Since it is unknown if the parcels would actually be explored and/or developed, or the extent of any subsequent exploration and development on either a temporal or spatial scale, it is not possible to provide definitive air quality impacts through dispersion modeling or another acceptable method at this time. The BLM will request or develop an exploration and development emissions inventory with project-specific information at the time that the BLM receives a development proposal and performs a site-specific NEPA analysis. For the potential GHG emissions analysis (Issue #6 for this EA), the BLM estimated that up to 15 new federal wells could be developed on the subject lease parcels; 8 new oil and gas wells on the parcels located in the Pawnee NG (northern RGFO), and 7 new federal oil and gas wells on the parcels located in southern RGFO.

The following per-well emission rates were developed using oil and gas operator-provided information for oil and gas development near the proposed lease parcels. Following the per-well emissions table is discussion regarding potential new federal oil and gas development and sources that could begin operation as a result of new oil and gas development on the proposed lease parcels, based on recent oil and gas projects for the area. The construction and development emission rates in the following table are for all pre-production-related activities, including well-pad, access road, and pipeline construction; drilling and completion activities; and all related traffic. The production emission rates are post-development and represent equipment and activities, including stationary engines, product stream components, pneumatics, heaters, tanks, maintenance activities, and all related traffic.

Typical New Well Emissions (TPY)*

Parameter	PM ₁₀	PM _{2.5}	VOC	NO _x	CO	SO ₂	CO _{2e}	HAPs
Construction and Development (Per well)	2.63	0.77	4.09	12.35	9.65	0.37	17,356.8	0.19
Production** (Per well)	0.15	0.08	3.69	2.48	3.55	0.03	131,280.8	0.23

*Weighted average based on 11 recent / new projects in the area of the parcels.

**CO_{2e} production emissions include end-use combustion.

As shown in the table above, per-well NO_x emissions for the construction and development phase of a project are relatively high, and the potential impacts associated with construction and development-phase NO_x emissions are usually a main focus for project-level assessments. These per-well NO_x emissions for the construction/development phase are driven primarily by large non-road engines for drilling and completion/fracking activities.

Local Near-Field Assessment:

A quantitative analysis of potential impacts associated with new oil and gas development that could occur on the three lease parcels located in the Pawnee NG just north of the O3 NAA and in areas near these parcels was conducted utilizing a gridded near-field assessment tool based on the results of the Colorado Air Resource Management Modeling Study (CARMMS) (version 2.0). The tool determines how much new federal and non-federal oil and gas-related emissions were modeled in the CARMMS "domain" (the 4-km grid cells where the parcels are located and the adjacent grid-cells up to 10 kilometer domain radius) for all of the projected future emission scenarios (low, medium, and high). The tool also provides the range of corresponding modeled cumulative concentrations (for each CARMMS scenario) of ambient nitrogen dioxide, ozone, and particulate matter (PM 10 and 2.5). The following discussion summarizes CARMMS 2.0 future year 2025 modeling inputs and results for areas near the northern RGFO parcels:

- The CARMMS 2.0 high scenario future year 2025 modeling included approximately 720 TPY of ozone-related (NO_x and VOC) emissions for new federal oil and gas development/production for grid cells surrounding the subject lease parcels located in the Pawnee NG just north of the O3 NAA. As described in the subsection above, it was estimated that 8 new federal oil and gas wells could be developed on these lease parcels. Assuming the typical per-well emission rates shown in the table above, 720 TPY of ozone precursor (NO_x and VOC) emissions adequately account for the potential new development (8 wells) that could occur on the subject lease parcels as well as other new foreseeable federal oil and gas development in this area.
- Maximum modeled CARMMS 2.0 high scenario cumulative concentrations are below NAAQS for all criteria pollutants modeled, except ozone. The maximum ozone impact contribution for new federal oil and gas sources (developed years 2016–2025) to the year 2025 maximum ozone cumulative concentration is ~ 0.9 ppb, which is below EPA's New

Source Review Significant Impact Level (SIL) of 1 ppb for the CARMMS 2.0 high scenario.

- The difference in the CARMMS 2.0 high and medium scenarios maximum ozone cumulative concentrations for this area in northern Colorado is ~ 0.02 ppb, which suggests that the additional emission controls (Tier 4 gen-set emission standards assumed for all federal drilling and fracking engines; 50% of all new federal pneumatic devices would be no-bleed, 80% dust control instead of 50% control, etc.) applied to all new BLM Colorado federal oil and gas sources for the CARMMS 2.0 medium scenario would not result in significant ozone concentration reductions for this area; the medium scenario assumes the same level of new federal oil and gas as the high scenario but only applies the additional emission controls to new federal sources developed years 2016 through 2025.
- The CARMMS 2.0 future year 2025 modeling results for areas surrounding the lease parcels suggest that the predicted local air pollutant concentration levels would be primarily influenced by emission sources other than those associated with new federal oil and gas.

Future Project-Level Impacts Analyses:

Substantial emission-generating activities cannot occur without further BLM analysis and approval of proposals for exploration and development operations. The BLM will assess project-specific impacts on air resources during the parcel development (permitting) stage, including potential impacts to visual and other air quality impacts on nearby Class I areas. The more detailed information available at that stage will allow the BLM to more accurately estimate emissions and determine potential impacts on air quality.

3.4.5 Issue 5: Air Quality Related Values and Regional Impacts

What is the potential effect of new emission sources that could be developed on the lease parcels on regional impact parameters including haze formation and nitrogen deposition at nearby Class I areas, and regional ozone formation?

Data from the current version of the BLM Colorado's Annual Report for Air Resources (Annual Report 2.0) is incorporated by reference in this analysis to provide information for the affected environment and cumulative impacts analysis. Annual Report 2.0 is available to the public on BLM Colorado's website at: <https://www.blm.gov/programs/natural-resources/soil-air-water/air/colorado>.

Affected Environment:

Regional Air Quality Analysis— Background

Analysis indicators related to air quality can be described in terms of air pollutant (or air quality related value) and airshed classes, standards, and concentrations. Section 2.0 (Affected Environment) of Annual Report 2.0 provides detailed information for this section. This section of the Annual Report 2.0 includes subsections "Airshed Classes and Prevention of Significant Deterioration" and "Air Quality Related Values."

Environmental Consequences of Leasing and Development—Cumulative Impacts:

This lease sale, when combined with the past, present, and reasonably foreseeable future actions may (through future development), contribute incrementally to the deterioration of air quality in the region. At present, any future potential cumulative impact is speculative, given that the pace, place, and specific equipment configurations of such development are unknown. Development of fluid minerals on these leases would result in additional surface disturbance and emissions during drilling, completion, and production activities. The severity of these incremental impacts could be elevated based on the amount of contemporaneous development (either federal or private) in surrounding areas. While recognizing the uncertainties described above, the BLM has used mapping and a modeling study to broadly estimate the potential cumulative impacts to air quality from leasing and development of the parcels under consideration in light of ongoing oil and gas exploration and development in the area.

To examine potential cumulative air quality impacts from activities that it authorizes, this EA uses CARMMS 2.0 modeling results. The study includes an assessment of statewide impacts of projected oil and gas development (both federal and non-federal) through the year 2025 for three development scenarios (low, medium, and high). Projections for development are based on either the most recent field office reasonably foreseeable development document (high scenario), or by projecting the 5-year average development pace for year 2011 through 2015 forward through 2025 (low scenario). The medium scenario includes the same well count projections as the high scenario, but assumes restricted emissions, whereas the high and low scenarios assume current development practices and existing emission controls and regulations (as of year 2015). The future projected CARMMS emission inventories are assumed to include all future new oil and gas development within each BLM Colorado planning area, including potential development associated with the subject parcels.

Each field office was modeled with the source apportionment (SA) option, meaning that incremental impacts to regional ozone and AQRVs from development within each field office are parsed to better understand the significance of development in each area on affected resources and populations. The RGFO was split into four SA areas, since the field office is so large. The CARMMS leverages the work completed by the Intermountain West Data Warehouse, and the base model platform and model performance metrics are based on those products (2011). The complete report and associated data are available online at <https://www.blm.gov/programs/natural-resources/soil-air-water/air/colorado>

The BLM continually tracks authorized oil and gas activity to determine which CARMMS scenario would be most appropriate to estimate air resource impacts based on the source apportionment area's cumulative federal development and total production. Although the predicted impacts will be based on future modeling results (year 2025), the differences in the impacts between the scenarios provide insight into how mass emissions affect the atmosphere on a relative basis and are thus useful for making qualitative correlations for the tracked emission levels.

On a cumulative basis, overall federal oil and gas development activity in Colorado is tracking close to the CARMMS 2.0 low scenario, with higher levels occurring in the D.J. Basin (CARMMS 2.0 - Areas 1 [ozone NAA] and 3 [~ D.J. Basin outside ozone NAA]) of RGFO and within the Colorado River Valley Field Office (two typically high oil and gas development areas).

The cumulative maximum air quality and AQRV impacts described in this document use the CARMMS 2.0 high scenario modeling results and are far greater than those expected to occur in the near future based on observations of actual new oil and gas development trends (because no area in Colorado is outpacing the high development scenario, and Colorado on a statewide basis is tracking below the CARMMS 2.0 high development scenario).

CARMMS 2.0 High Scenario New Federal Emissions (TPY)*

Source Area	PM₁₀	PM_{2.5}	VOC	NO_x	SO₂
RGFO	2,814	413	6,178	2,780	4
Colorado	6,518	1,543	33,514	23,714	1,231

*Year 2025 emissions for new federal oil and gas development years 2016 through 2025

CARMMS 2.0 High Scenario Annual Nitrogen Deposition—RGFO

CARMMS Scenario	Max Class I kg/ha-yr	Class I Area	Max Class II kg/ha-yr	Class II Area
High	0.0003	Rocky Mountain NP	0.0022	Lost Creek Wilderness

*Source apportionment impacts for new federal oil and gas development through the year 2025 in RGFO

Cumulatively, all new federal oil and gas developed in Colorado through year 2025 for the CARMMS 2.0 high scenario could contribute up to 0.0637 kg/ha-yr of nitrogen deposition annually at the nearby Lost Creek Wilderness, ~ 0.044 kg/ha-yr at Great Sand Dunes National Park, and approximately 0.0629 kg/ha-yr at Rocky Mountain National Park. Cumulatively, CARMMS 2.0 predicts 0.56 kg/ha-yr and 0.32 kg/ha-yr overall improvements from baseline year 2011 through year 2025 for the high scenario for Rocky Mountain National Park (NP) and Great Sand Dunes NP, respectively.

CARMMS 2.0 High Scenario Visibility Changes—RGFO

CARMMS Scenario	Max Class I dv	Class I Area	Days > 0.5 dv	Days > 1.0 dv	Max Class II dv	Class II Area	Days > 0.5 dv	Days > 1.0 dv
High	0.13977	Rocky Mountain NP	0	0	0.12031	Florissant Fossil Beds NM	0	0

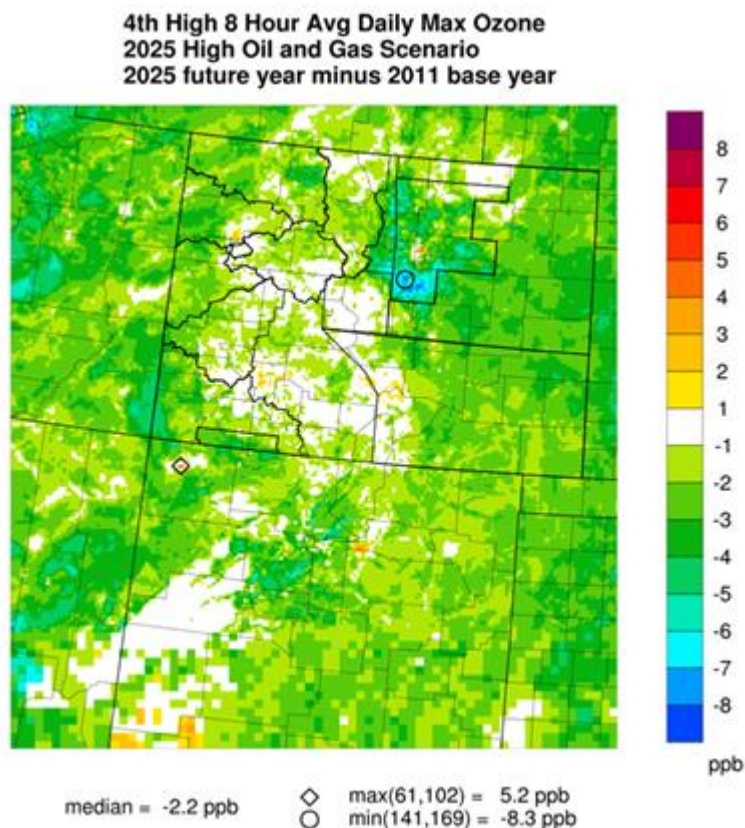
*Source apportionment impacts for new federal oil and gas development through the year 2025 in RGFO

Cumulatively, all new federal oil and gas in Colorado for the CARMMS 2.0 high scenario could contribute up to 0.29 dv of visibility changes at the Great Sand Dunes NP (maximum RGFO-only predicted potential visibility changes at Great Sand Dunes NP ~ 0.03 dv). At Rocky Mountain NP, the CARMMS 2.0 predicted potential visibility change value for new Colorado federal oil and gas (years 2016 through 2025) is approximately 0.30 dv. Overall, cumulatively (all sources including federal and non-federal oil and gas as well as other sectors), CARMMS 2.0 future year 2025 worst (dirtiest) 20 percent days cumulative visibility metric value (deciview – dv) for Rocky Mountain

NP is 11.93 dv (not an improvement—note that new BLM Colorado federal oil and gas development through year 2025 is modeled to contribute 0.04 dv of the overall cumulative value) and is 11.43 dv (improvement) for Great Sand Dunes NP.

For all of the metrics outlined above, new federal oil and gas development within the RGFO through year 2025 for the CARMMS 2.0 high scenario (highest level of new oil and gas development years 2016 through 2025) would not cause significant impacts to air resources. In addition, overall, cumulatively, air quality and AQRV improvements (including lower ozone concentrations in the Denver–Front Range area) are expected at many locations around the region. The following plot shows CARMMS 2.0 modeled year 2025 changes from baseline year 2011 conditions for ozone.

CARMMS 2.0 High Scenario—Ozone—Modeled Year 2025 Change from Baseline Year 2011 Conditions



3.4.6 Issue 6: GHGs and Climate Change

What is the potential effect of new emission sources that could be developed on the lease parcels on global GHG emissions levels (and related climate change)?

Affected Environment:

Greenhouse Gases Emission Sources—Overview

Oil and gas development is expected to remain similar to the current rates for the foreseeable future in Colorado. Significant shifts are not foreseeable in petroleum market dynamics (supply, demand, etc.), changes or advancements in development and recovery technologies, newly discovered resources and plays, or political influences (tax or regulatory incentives) that would significantly affect development rates in Colorado. Continued field development, operation of well site equipment, and associated vehicle traffic would result in minor cumulative contributions to atmospheric GHGs. Natural gas and condensate produced from oil and gas development would be refined to produce a wide range of fuel products for consumer or commercial use. The combustion of these fuels would generate GHGs, which may be controlled through GHG control regulations (emission standards) or air permit requirements.

Other industrial operations in the area would also contribute to GHG emissions through the use of carbon fuels (liquefied petroleum gas, oil, and diesel) and through use of electricity produced using carbon fuels. Other anthropogenic activities, such as residential wood and open burning, as well as biogenic sources, also contribute GHGs to the atmosphere. These would be intermittent and more dispersed than the emissions from future oil and gas development projects that could occur on the subject lease parcels.

Greenhouse Gases—Baseline Global, U.S., and Colorado Emissions

Policies regulating specific GHG concentration levels and their potential for significance with respect to regional or global impacts have not been established. According to data extracted from the U.S. Department of the Interior, Office of Natural Resources Revenue (ONRR) in 2017, the country's total federal (onshore) oil and gas production in 2015 was approximately 191 million barrels (bbl) of oil and 3,482,000 million cubic feet (MMcf) of natural gas, which accounted for 5.6 percent and 10.6 percent of the nation's total production (combined federal and non-federal), respectively. Colorado's federal oil and gas production represented 0.66 percent and 13.7 percent of the nation's federal oil and gas production in 2015, and 0.15 percent and 2.0 percent of the nation's total oil and gas production (federal and non-federal, onshore and offshore), respectively. For this analysis, the BLM makes the conservative assumption that all of the oil and gas produced in the U.S. is combusted within the larger sectors of the economy (electricity generation; transportation; industry).

The U.S. produced approximately 3,270 million tons of CO₂e emissions in 2015 for oil and gas-related activities, including processing and downstream combustion, according to EPA's Inventory of U.S. Greenhouse Gas Emissions and Sinks. The calculated 2015 CO₂e emissions from federal oil and gas development and operations in Colorado (47.5 million tons) and across the nation (274 million tons onshore) represent 0.31 percent and 1.8 percent, respectively, of the nation's total GHG emissions (BLM 2016). Note that the percentage of the nation's total 2015 GHG emissions associated with U.S. oil and gas-related activities is approximately 21.6 percent. In addition, Table 6-1 of Annual Report 2.0 provides year 2018 U.S. total and federal fossil fuel emissions. This table shows that for year 2018, Colorado federal natural gas production constituted about 15 percent of the total U.S. federal natural gas production, and Colorado federal petroleum production made up about 1 percent of total U.S. federal petroleum production.

At a global scale, the U.S. and the world emitted 6,344 MMT CO₂e and 53,530 MMT CO₂e, respectively, in 2012 according to The World Bank Group. In other words, the U.S. produced 12 percent of the global GHG emissions.

In addition, data from the current version of BLM Colorado's Annual Report (Annual Report 2.0) for Air Resources is incorporated by reference in this analysis to provide information for the affected environment and impacts analysis. The Annual Report 2.0 is available to the public on BLM Colorado's website at: <https://www.blm.gov/programs/natural-resources/soil-air-water/air/colorado>.

The following locations in the online Annual Report 2.0 contain pertinent information:

- **Climate Statistics and Analysis**—This section of the report (Section 6.0 Climate Statistics and Analysis) describes Colorado's climate, as summarized from the Western Regional Climate Center's website. It also describes the science, metrics, and trends accounting for recent and projected climate change (based on potential future global emissions scenarios), as summarized from Intergovernmental Panel on Climate Change's (IPCC) Fifth Assessment Report and Special Report (SR15). This section also provides context for the estimates of downstream combustion-related emissions from various federal and non-federal contributors.
 - The "Greenhouse Gases" subsection provides an overview of GHGs and how they can potentially influence Climate Change.
 - The "Colorado's Climate" and "Climate Change" subsections contain baseline GHG and climate change information, including the following Colorado-specific baseline information:
 - In Colorado, the statewide annual average temperatures have increased by 2.0°F and 2.5°F over the past 30 and 50 years, respectively. Scientists observe warming trends over this period in most parts of the State and show that daily minimum temperatures have warmed more than daily maximum temperatures. Additionally, temperature increases have occurred in all seasons.
 - No long-term trends in average annual precipitation (30–50 years) have been detected across Colorado, although since 2000, the state has experienced below-average annual precipitation and snowpack. The warming trends have contributed to earlier (approximately 1 to 4 weeks) snowmelt and peak runoff in spring.
 - The "Carbon Budget" subsection provides year 2018 emissions data for Colorado and the U.S.

Environmental Consequences of Leasing and Development—Direct and Indirect Impacts:

No Action Alternative—Potential Environmental Consequences:

Potential greenhouse gas emissions and climate change impacts for all alternatives would be similar, as the future potential GHG emissions difference for new oil and gas production that could occur for the subject lease parcels relative to the No Action Alternative would likely be small when compared to broader scope GHG emissions inventories (U.S.; global). To further understand how BLM Colorado decisions for federal minerals translate into free energy market dynamics and potential climate-related impacts, the BLM evaluated federal mineral development

in Colorado using the Bureau of Ocean Energy Management's (BOEM) Market Simulation Model (MarketSim).

MarketSim models oil, gas, coal, and electricity markets to produce estimates of the substitute energy source mix from production changes expected under various resource-restricted scenarios. The model provides net substitution assessments for oil and gas imports, onshore oil and gas production, fuel switching (e.g., coal), and reduced energy consumption (demand) for a given period of time. Although BOEM developed MarketSim to produce substitution estimates specifically for the absence of a new Outer Continental Shelf leasing program, the basic model calculations allow for its use in modeling the substitutes for other oil and gas sources, including new onshore production. For additional details on MarketSim, please refer to the full model documentation entitled "Consumer Surplus and Energy Substitutes for OCS Oil and Gas Production: The 2015 Revised Market Simulation Model (MarketSim)," which is available online at <https://www.boem.gov/sites/default/files/oil-and-gas-energy-program/Leasing/Five-Year-Program/2017-2022/Market-Sim-Model.pdf>.

BLM Colorado used MarketSim to estimate the effects of a statewide federal "No Development" scenario (i.e., no new federal mineral production) at the broader market scales, for the remainder of the CARMMS 2.0 projection period (2019–2025), at both the low (current trend) and high (RFD scenario) development rates. The results for the low scenario predict that 71.3 percent of the eliminated federal mineral production would be offset by additional onshore production, 18.2 percent by increased foreign imports, 8.3 percent by decreased demand, and the remainder (2.2 percent) by increases in coal and other electricity (nuclear, hydro, solar, wind, etc.) markets. The high scenario produced similar results, albeit with a slightly higher shift in demand (decreased consumption) substitution at 8.7 percent.

BOEM also developed a greenhouse gas lifecycle model (GHG Model) to estimate the GHGs associated with the MarketSim substitution results. The GHG estimates include emissions from oil and gas refining, processing, storage, consumption, and substitution. These calculations are not specific to the consumption of OCS production and are thus appropriate to use for calculating greenhouse gas emissions from the consumption of oil and gas from Colorado federal minerals. The full GHG Model documentation is entitled "OCS Oil and Natural Gas: Potential Lifecycle Greenhouse Gas Emissions and Social Cost of Carbon," and is available online at <https://www.boem.gov/ocs-oil-and-natural-gas/> (see section 4). The GHG Model does not provide estimates from the upstream (direct) portion of the emission generating activities, such as exploration and development (i.e., the emissions covered by CARMMS).

In absolute terms, the MarketSim predicts that under the statewide federal "No Development" scenario, emissions from substitute sources would equate to approximately 91 percent of the Colorado federal oil and gas GHG emissions (as CO₂e) associated with both the low and high CARMMS production scenarios. This result can be extrapolated to future GHG emission estimates for smaller areas of Colorado, including groups of lease parcels in a particular field office. Thus, based on the model, BLM would expect that approximately 91 percent of the future GHG emissions (including those associated with downstream combustion) estimated for potential new oil and gas development on the subject parcels would be generated from substitute sources under the No Action Alternative. Thus, potential greenhouse gas emissions and climate change impacts for both alternatives would be similar, and the emissions under both alternatives are small in comparison to broader scope GHG emission inventories (U.S.; Global).

Proposed Action—Potential Environmental Consequences:*Greenhouse Gases—Future Potential Emissions for Subject Lease Parcels*

Total GHG emissions (tons of CO₂e) for all stages of oil and gas development, production, transport, and consumption were estimated for potential oil and gas development that could occur on the subject lease parcels. Using the BLM oil and gas statistics data for Colorado for the last five (2015-2019) years, the lowest oil and gas spacing (i.e., highest well density) value for all federal and nonfederal oil and gas wells for any given year is approximately 210 acres per well. Applying this well-spacing density to the acreage of the parcels located in northern RGFO in the Pawnee NG, BLM calculated an estimate of approximately 8 potential new federal oil and gas wells for those lease parcels. The parcels located in the southern portion of RGFO are located in an RFD area of 1 or fewer new wells per township over the next 20 years. The southern RGFO lease parcels cover portions of 7 townships (not entire townships), and it is assumed that 7 new wells could be developed on those parcels for a total of 15 new federal wells developed for all subject lease parcels.

The estimated number of new federal wells (15) was multiplied by the weighted average per-well emissions for the field office, based on emission inventories and production profiles for recent oil and gas projects. This resulted in the 30-year projected total potential CO₂e emissions for new federal oil and gas development on the subject parcels of approximately 59 million tons CO₂e. Approximately 92 percent of this total would be associated with “downstream” end-use combustion. This 30-year projected emissions value assumes well development (construction, drilling, and completion) and 30 years of midstream operations and downstream combustion emissions. The following per-well emission rates were used to calculate the projected GHG emissions for new oil and gas development that could occur on the subject lease parcels:

- RGFO upstream (occurs once per well): 17,357 TPY CO₂e
- RGFO midstream and downstream (occurs each year per well): 131,281 TPY CO₂

For comparison to future modeled CO₂e emission rates for global climate change studies, the 30-year (years 2020–2050) CO₂e emissions total for the region including the U.S. (R50ECD World Region) under the IPCC concentration pathway for smallest climate change scenario (RCP 2.6), is approximately 2.7×10^{11} million tons.

Greenhouse Gases—Future Potential Cumulative Emissions and Trends

In addition, cumulative GHG and Climate Change information from BLM’s Greenhouse Gas and Climate Change Report (2017) is incorporated by reference to describe potential GHG emissions for various future years and energy development scenarios. For that report, GHG emissions were calculated for two energy development scenarios (“normal” and high rates of energy production and consumption) for projected years 2020 and 2030 for 12 western states with federal oil and gas resources, including Colorado. GHG emission estimates for federal and non-federal energy-related production (i.e., upstream and midstream) and consumption (i.e., downstream) were developed for coal, oil, natural gas, and liquefied natural gas (LNG). The report used production and consumption data presented in the Energy Information Administration (EIA) 2016 Annual Energy Outlook to determine growth factors to estimate normal and high inventories. The following summarizes the projected 2020 and 2030 annual GHG emissions and trends for federal mineral resources in Colorado and nearby states:

- Annual Colorado federal emissions due to oil production and end-use consumption are projected to remain almost static from 2014 to future years (2020 and 2030) with a slight decrease in GHG emissions for both the normal and high scenarios from 2.22 million metric tons of CO₂e in 2014, to 2.02 and 2.15 million tons of CO₂e in the 2030 normal and high scenarios, respectively.
- For the twelve other states analyzed (California, Colorado, Idaho, Kansas, Montana, New Mexico, North Dakota, Oklahoma, South Dakota, Texas, Utah and Wyoming), total annual federal oil GHG emissions are projected to slightly decrease (–2MMT CO₂e) from 2014 to 2030 for the normal scenario and slightly increase (+2 MMT CO₂e) for the high scenario. The year 2014 annual federal oil baseline GHG emissions total is approximately 68 MMT CO₂e.
- Annual Colorado federal emissions due to natural gas production and downstream consumption are projected to increase into year 2030 for both the normal and high scenarios from 42.91 million metric tons of carbon dioxide equivalents (MMT CO₂e) in base year 2014 to 44.55 and 45.03 MMT CO₂e in the 2030 normal and high scenarios, respectively.
- For the 12 states, total annual federal natural gas GHG emissions are projected to increase by almost 25 percent from 2014 to 2030 for both the normal scenario and high scenarios. The year 2014 annual federal natural gas baseline GHG emissions total is ~ 210 MMT CO₂e.
- Annual Colorado federal emissions due to natural gas liquids are projected to decrease from baseline year 2014 to projected year 2030 by approximately 25 to 30 percent for both scenarios from 2.20 million metric tons of CO₂e in 2014, to 1.60 and 1.70 million tons of CO₂e in the 2030 normal and high scenarios, respectively.
- For BLM oil and gas states, total annual federal natural gas liquids GHG emissions are also projected to decrease by 25–30 percent from 2014 to 2030 for both the normal scenario and high scenarios. The year 2014 annual federal natural gas liquids baseline GHG emissions total is approximately 22 MMT CO₂e.
- As described above, the 30-year projected total potential CO₂e emissions for new federal oil and gas development on the subject parcels is approximately 59 million tons CO₂e; this would equate to an annual average of 1.8 MMT CO₂e.
 - The CO₂e emissions for new potential Federal oil and gas development that could occur on the subject lease parcels would constitute approximately 3.7% of the total annual projected year 2030 Colorado Federal emissions due to oil, natural gas, and natural gas liquids production and end-use emissions under the normal scenario.
 - The CO₂e emissions for new potential Federal oil and gas development that could occur on the subject lease parcels would constitute approximately 0.5% of the total annual projected year 2030 BLM oil and gas states Federal emissions due to oil, natural gas, and natural gas liquids production and end-use emissions under the normal scenario.

Within the BLM emissions profile, the relative mixture of coal, oil, and natural gas is expected to change from baseline year to 2030 (with coal decreasing and natural gas increasing). The report

also provides a supplemental “Understanding Future Climate Impacts” section and explains that projected changes in climate are driven by the cumulative emissions, not the emissions profile.

On a global scale, the GHG emission contribution of any single geographic subunit (such as a BLM field or state office) or source (such as federal minerals) on a subnational scale is dwarfed by the large number of comparable national and subnational contributors. The relative contribution of GHG emissions from production and consumption of federal minerals will vary depending on contemporaneous changes in other sources of GHG emissions. A single subnational contributor, such as a BLM field office, is very unlikely to influence global cumulative emissions. Nevertheless, each source contributes, on a relative basis, to global emissions and long-term climate impacts.

BLM incorporates here by reference related subsections of the most recent Annual Report 2.0 (“Emissions Analysis,” “Projected Climate Change Impacts,” “NEPA Analysis,” and “The Carbon Budget”) for further description of potential cumulative emissions and climate changes. The “Projected Climate Change Impacts” section of the report explains that all climate model projections indicate future warming in Colorado. Statewide average annual temperatures are projected to warm by less than +2.0 °F and increase +2.5°F to +5°F by 2050, relative to a 1971–2000 baseline under the RCP 2.6 and 4.5 scenarios, respectively. Under the IPCC’s high global GHG emissions scenario (RCP 8.5), the projected warming is +3.5°F to +6.5°F and would occur later in the century, as the RCP scenarios diverge rapidly after mid-century (note that the average temperature for the RCP 2.6 scenario is projected to remain almost static for the second half of the 21st century).

Summer temperatures are projected to warm slightly more than winter temperatures, with maximums similar to the hottest summers that have occurred in the past 100 years. Precipitation projections for the U.S. are less clear, as the climate models consistently project an increase in annual precipitation for the northernmost states of the U.S. and a decrease in precipitation for the far Southwest, with individual models showing a range of changes by 2050, such as –2.5% to +2.5% for RCP 2.6, –5% to +6% for RCP 4.5, and –3% to +8% under RCP 8.5. Nearly all of the models predict an increase in winter precipitation by 2050, although most projections of snowpack (snow water equivalent [SWE] as of April 1) show declines by mid-century due to the projected warming. Late-summer flows are projected to decrease as the peak shifts earlier in the season, although the changes in the timing of runoff are more certain than changes in the amount of runoff. In general, the majority of published research indicates a tendency towards future decreases in annual streamflow for all of Colorado’s river basins. Increased warming, drought, and insect outbreaks, all caused by or linked to climate change, are expected to continue to increase wildfire risks and impacts to people and ecosystems.

As described in the Annual Report 2.0, consumption of all of the federal energy produced in the U.S. in 2018 (onshore and offshore) would be equivalent to 0.22 percent of the remaining carbon budget, while the Colorado component of the federal mineral estate is approximately 0.01 percent of the carbon budget and just 1.02 percent of total U.S. fossil fuel energy emissions (as CO₂e) on an annual basis. At the current production rates shown, total federal mineral combustion would exhaust the carbon budget in approximately 461 years, while federal minerals in Colorado would do the same in about 9,943 years.

Potential Future Mitigation:

Federal oil and gas-related GHG emissions in Colorado are expected to follow the national emissions pathways and trends, and Colorado state regulations are expected to reduce Colorado-based emissions more than in other states. All operators must comply with applicable state and federal air quality laws and regulations, including Colorado's emission control regulations. As noted above, substantial emission-generating activities cannot occur without further BLM analysis and approval of proposals for exploration and development operations. If BLM approves such operations, it may condition its approval on mitigation measures to address resource impacts, including impacts associated with air pollutant emissions, as appropriate.

Prior to approving development activities on a leased parcel, the BLM conducts a refined project-level analysis that considers the impacts of the operator's development plans, to the extent reasonably foreseeable. The BLM typically considers the direct and indirect emissions inventory for the proposal (including GHGs), and its cumulative effects analysis considers estimated emissions from other development on and outside the lease and other nearby emission sources. BLM may impose specific mitigation measures within its authority, based on the review of site-specific proposals and new information about the impacts of exploration and development activities in the region.

In May 2019, the State of Colorado enacted HB 19-1261, which sets statewide GHG emission reduction goals (year 2025 GHG emissions are to be 26 percent lower than the year 2005 level, and year 2050 GHG emissions are to be a maximum of 10 percent of year 2005 level). The statute directs the Colorado Air Quality Control Commission to promulgate regulations to achieve these goals. Such reductions, if achieved, would change the cumulative impacts of emissions resulting from BLM decisions. The BLM will continue to evaluate emission trends in its future decision-making.

The BLM will continue to require that operators follow best management practices and control or offset GHG emissions by using feasible techniques such as minimizing vegetation clearing, maximizing successful interim reclamation, reducing truck idling, and improving equipment where fugitive emissions could leak (consistent with state and federal requirements).

Consideration of Other Analytical Methods

BLM has considered whether a "social cost of carbon" (SCC) estimate would contribute to informed decision-making regarding the climate consequences of the greenhouse gas emissions considered here. BLM Colorado has chosen not to use the SCC protocol in this analysis for several reasons. The SCC tool was developed for the express purpose of "allow[ing] agencies to incorporate the social benefits of reducing carbon dioxide (CO₂) emissions into cost-benefit analyses of regulatory actions that impact cumulative global emissions" and to assist agencies in complying with Executive Order 12866. Executive Order 12866 required federal agencies to assess the cost and benefits of rulemakings as part of their regulatory impact analyses. The action considered here is not a rulemaking and does not require a regulatory impact analysis.

The SCC protocol does not add any information about the actual impacts of a project on the biophysical environment or economic conditions in a specific geographic location. The SCC is an estimate of the generalized economic damages associated with an increase in carbon dioxide emissions. NEPA does not require an economic cost-benefit analysis (40 C.F.R. § 1502.23), although NEPA does require consideration of "effects" that include "economic" and "social" effects (40 C.F.R. 1508.8(b)). BLM uses economic impact analyses in lease sale EAs and

associated RMP EISs to qualitatively or quantitatively discuss potential revenue and economic activity from future oil and gas development. This potential economic activity, such as royalty revenue, jobs, and income should not be mischaracterized as “economic benefits” of the proposed action (Watson et al. 2007).

An economic cost-benefit analysis, on the other hand, is an approach used to determine economic efficiency by focusing on changes in social welfare by comparing whether the monetary benefits gained by people from an action/policy are sufficient in order to compensate those made worse off and still achieve net benefits (Watson et al. 2007; Kotchen 2011). Foundational economic theory dictates that an economic impact does not equate to an economic benefit, since economic impact analyses and economic cost-benefit analyses are two different methods based upon differing assumptions and terminology, and therefore are not interchangeable. This distinction is important because principles of cost-benefit analysis prohibit mixing economic impacts into a net benefit calculation. Since the full social benefits of oil and gas production and development have not been monetized in this lease sale EA, quantifying only SCC of emissions but not the benefits would yield information that is both potentially inaccurate and not useful for the decision-maker and the public.

3.4.7 Issue 7: Social and Economic Conditions

What impacts will leasing and potential development have on social and economic conditions in Las Animas and Weld Counties?

Affected Environment:

The proposed parcels for the September 2020 lease sale are located in Las Animas and Weld Counties, Colorado. Accordingly, the socioeconomic study area focuses on these counties and the State of Colorado, as the effects of the activity generated by the lease sale may impact the social and economic conditions in these areas. In 2017, Las Animas County had 14,238 residents, which represents approximately a 10 percent decrease in population since 2010, while the state of Colorado grew by 11 percent (Headwaters Economics 2019). The county has been affected by the boom and bust cycles from its mining heritage. In addition to natural resource extraction, agriculture is an important economic driver. In 2017, the county had 549 farms with a market value of products sold of more than \$25.8 million (USDA NASS 2019). More recently, with an influx of retirees, the county is seeing transfer payments as a large part of residents’ income (Headwaters 2019). The travel and tourism sector represents approximately 25 percent of the jobs in the County (Headwaters 2019).

Since 2000, Weld County has seen a growth of approximately 7,800 residents (Headwaters 2020) with much of the population growth associated with increased oil and gas production. This growth has resulted in a more diverse and increasingly urban population compared to the county’s rural roots. Many of the county’s economic sectors have seen increased growth since 2000—at the low end, a 19 percent increase in manufacturing and wholesale trade jobs to a 68 percent increase in education employment. The only job losses are in the farm and information sectors. The influx of new residents and oil and gas development has put stress on Weld County’s transportation infrastructure.

Leasing mineral rights for the development of federal minerals generates public revenue through the bonus bids paid at lease auctions and annual rents collected on leased parcels not held by production. Proposed parcels approved for leasing are offered by the BLM at a minimum rate of \$2.00 per acre at the lease sale. These sales are competitive, and parcels with high potential for oil and gas production often command bonus bids in excess of the minimum bid. In addition to bonus bids, lessees are required to pay rent annually until production begins on the leased parcel, or until the lease expires. These rent payments are equal to \$1.50 an acre for the first five years and \$2.00 an acre for the second five years of the lease.

The State of Colorado receives 49 percent of the total revenue associated with federal mineral leases. Federal mineral lease revenue for the State of Colorado is divided as such: 48.3 percent of all mineral lease rent and royalty receipts are sent to the State Education Fund. Ten percent of all mineral lease rent and royalty receipts are sent to the Colorado Water Conservation Board. Approximately two percent of all mineral lease rent and royalty receipts are distributed directly to local school districts originating the revenue or providing residence to energy employees and their children. Forty percent of all mineral lease rent and royalty receipts are sent to the Colorado Department of Local Affairs, which then distributes half of the total amount received to a grant program, designed to provide assistance with offsetting community impacts due to mining, and the remaining half directly to the counties and municipalities originating the federal mineral lease revenue or providing residence to energy employees.

Bonus payment funds received by the State of Colorado are allocated separately from rents and royalties in the following manner: 50 percent of all mineral lease bonus payments are allocated to two separate higher education trust funds: the “Revenues Fund” and the “Maintenance and Reserve Fund.” The Revenues Fund receives the first \$50 million of bonus payments to pay debt service on outstanding higher education certificates of participation. The Maintenance and Reserve Fund receives 50 percent of any bonus payment allocations greater than \$50 million. These funds are designated for controlled maintenance on higher education facilities and other purposes. The remaining 50 percent of state mineral lease bonus payments are allocated to the Local Government Permanent Fund, which is designed to accumulate excess funds in trust for distribution in years during which federal mineral lease revenues decline by 10 percent or more from the preceding year.

During the lease period, annual lease rents continue until one or more wells are drilled that result in production and associated royalties. The federal oil and gas royalties on production from public domain minerals equal 12.5 percent of the value of production (43 CFR 3103.3.1).

Past research on social impacts associated with energy development shows that social well-being often decreased during a boom, but then tended to increase once the boom is over. A comparative and longitudinal study conducted in Delta, Vernal, and Tremonton, Utah, and Evanston, Wyoming, addressed issues of social well-being in boomtowns (Brown et al. 2005; Brown et al. 1989; Greider et al. 1991; Hunter et al. 2002; Smith et al. 2001). With the exception of Tremonton, each of these communities experienced a boom during the late 1970s and early 1980s. Delta’s boom resulted after the construction of a power plant, while the booms in Evanston and Vernal were primarily related to oil and gas development. At least four surveys were conducted in these communities from 1975 to 1995.

Several indicators of social well-being were examined, including perceived social integration, relationships with neighbors, trust of community residents, and community satisfaction. Delta and Evanston showed similar patterns associated with these indicators. During the peak boom years, residents experienced diminished perceived social integration, relationships with neighbors, trust of residents, and community satisfaction. Interestingly, Brown et al. (2005) pointed out that the greatest declines in community satisfaction in Delta occurred just before the largest population increase of the 20-year study period, indicating that changes in population cannot alone account for shifts in community satisfaction and social integration. Nonetheless, by 1995, the levels of these indicators had returned to or exceeded pre-boom levels.

Another 2011 study highlights several of the changes that have been seen across the Bakken oil counties and the impacts to quality of life (Bohnenkamp et. al. 2011). For example, the study highlights that the familiarity of residents with other residents and the safety often felt in small rural communities has shifted to in-migration of new people and safety concerns resulting from not knowing these people. The study also highlights concerns over housing prices and values increasing and the changing of the population. While there is an in-migration of people for oil field jobs, there has also been an out-migration of long-time residents who are not able to afford the rising housing costs (Bohnenkamp et. al. 2011).

The proximity of oil and gas wells and related facilities can influence nearby residential property sales, especially those on split estate land. Landowners who do not own mineral rights may be subject to federal mineral development on their land. Usually, these landowners enter into a surface use agreement and receive compensation, i.e. income, for the use of their land. Estimates of how individual properties are affected by nearby oil and gas development vary from case to case depending on specific location and the exact character and features of a property.

Several studies published in the past several years have attempted to estimate how property values are affected by nearby oil or gas exploration, drilling, and production. See Krupnick and Echarte (2017) for a summary of recent studies. In general, these studies find that at the time of sale, the presence of oil and gas wells near the property reduces the property value relative to what it would have sold for without a nearby well. Unfortunately, the explicit and implicit assumptions used in these estimates (such as the maximum distance for a “nearby well”) vary a great deal from study to study, as does the size of the price impacts, which range from zero to negative 37 percent (Krupnick and Echarte 2017).

Who owns the minerals appears to be another factor in property values. Split estates are referenced as a possible source of property value differences in several studies, and in one (Boslett et. al. 2016) property value estimates tended to be significantly lower in a Colorado region where the minerals were owned by the federal government compared to other areas where a comparable property was located above a non-federal mineral estate.

Additionally, multiple past studies identify concerns about the possible environmental impacts associated with oil and gas exploration and development as one reason for property value differences. But these concerns (and their influence on prices) can be tempered. Roddewig et al. (2014) state that “(p)ast real estate market studies indicate that investigation and remediation can limit price and value impacts from oil and gas contamination.” Note that the BLM actively investigates and seeks remediation of oil and gas contamination resulting from activities on federal land or involving federal minerals.

Current research also doesn't provide much guidance on how long these price impacts persist. Bennett and Loomis (2015) in a study in Weld County, Colorado, estimate a 1 percent decrease in urban house prices for every well being drilled within one-half mile "during the time the buyer is deciding upon buying the house," but "(o)nce the well moves out of active drilling and into becoming a producing well, all our models show there is no statistically significant negative effect on house prices."

Direct and Indirect Impacts:

The direct effect of leasing would be the payments received from leasing all or a subset of the more than 67,004 acres of federal mineral estate parcels proposed for the September 2020 sale. Indirect effects that might result, should exploration or development of the leases occur, could include increased employment opportunities related to the oil and gas and service support industry in the region as well as the economic contributions to federal, state, and county governments related to lease payments, royalty payments, severance taxes, and property taxes. Other effects could include the potential for an increase in transportation, roads, and noise disturbance associated with development, and potential for change in property values due to development. These effects would apply to all public land users in the study area, and surface owners above and adjacent to the proposed lease parcels.

Oil and gas exploration, drilling, or production may increase traffic and traffic delays, noise, and visual impacts. Increased truck traffic hauling heavy equipment, fracking fluids, and water as well as increased traffic associated with oil workers and increased populations could cause more traffic congestion, increase commuting times, and affect public safety. However, it is unknown when, where, how, or if future surface disturbing activities associated with oil and gas exploration and development such as well sites, roads, facilities, and associated infrastructure would be proposed. It is also not known how many wells, if any, would be drilled and/or completed, what types of technologies and equipment would be used, and what types of infrastructure would be needed for production of oil and gas.

Due to energy market volatility and the dynamics of the oil and gas industry it is not feasible to predict the exact effects of this leasing action, as there are no guarantees that the leases will receive bids, that any leased parcels will be explored, or that exploration will result in discovery of viable fluid mineral production. The type, magnitude, and duration of potential impacts cannot be precisely quantified at this time. Any future drilling activity requires an APD and requisite NEPA analysis, in which site-specific issues would be examined, including any identified socioeconomic issues resulting from disturbance and drilling on the leased parcel.

Cumulative Impacts:

Any possible future development of fluid mineral resources resulting from this lease sale, together with the current oil and gas development (see Section 3.3) could generate the economic and social impacts described in the proposed action. The magnitude of these types of socioeconomic effects is based on the level and pace of development, which is unknown at this time.

Potential Future Mitigation:

Mitigation would be determined if leased parcels are proposed for development.

3.4.8 Issue 8: Environmental Justice

Are there environmental justice populations that may be disproportionately adversely affected?

Affected Environment:

Executive Order (EO) 12898 states “each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations...” The purpose of EO 12898 is to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects on low-income populations, minority populations, or Indian tribes that may experience common conditions of environmental exposure or effects associated with a plan or project. A review of U.S. Census Bureau 2018 data (U.S. Census Bureau 2019a and 2019b), indicates that Weld County meets the criteria of having a Hispanic population of at least 5 percent greater than the State of Colorado, while Las Animas County meets the criteria for low income, Hispanic, and minority populations. Thus, the proposed action is occurring in an area considered to contain environmental justice populations.

Direct and Indirect Impacts:

No surface-disturbing activities are associated with a lease sale; therefore, direct impacts from the lease sale would not disproportionately adversely affect environmental justice populations. While leasing is one of the steps necessary for potential future oil and gas development of federal minerals to occur, due to energy market volatility and the dynamics of the oil and gas industry, it is not feasible to predict the exact effects of the leasing action, as there are no guarantees that the leases will receive bids, that any leased parcels will be explored, or that exploration will result in discovery of viable fluid mineral production. BLM does not know when, where, how, or if future surface-disturbing activities associated with oil and gas exploration and development, such as well sites, roads, facilities, and associated infrastructure, would be proposed. Nor does BLM know how many wells, if any, would be drilled and/or completed, the types of technologies and equipment that would be used, and the types of infrastructure needed for production of oil and gas. BLM will conduct additional NEPA analysis on site-specific impacts, including on environmental justice issues, if an APD is submitted.

As noted in Chapter 4, the BLM is consulting with tribes to solicit information on potential issues and concerns to be considered in the environmental analysis. Additionally, the BLM has considered all input from persons or groups regardless of age, income status, race, or other social or economic characteristics. The outreach and public involvement activities taken by the BLM are discussed in Section 1.4 and Chapter 4.

Cumulative Impacts:

Any possible future development of fluid mineral resources resulting from this lease sale would be in addition to current levels of development. As noted above, without more site specificity on the location and level of future development, the BLM cannot ascertain whether there would be disproportionately high and adverse health and environmental effects and what those effects may be to local environmental justice populations.

Potential Future Mitigation:

If appropriate, mitigation would be determined if leased parcels are proposed for development.

3.4.9 Issue 9: Visual Resources

What impacts will leasing and potential development have on the visual resource?

Affected Environment:

A visual resource inventory (VRI) was conducted for the RGFO in 2015. The inventory revealed that the proposed parcels in Las Animas County are located in a broad, expansive area with minimal landform variation and distant views of the Spanish Peaks. Vegetation throughout the area consists primarily of sagebrush, pinyon, juniper, cholla cactus, and grasses. Ranching and agricultural heritage is important to quality of life and related tourism. Recreationists have little access due to limited public land. Opportunities offered include wildlife viewing, hunting, and scenic driving.

The VRI was done at a coarse, field office-wide scale. The inventory identified the presence of contrasts with the natural environment, such as scattered and isolated ranches, homes, railroads, and power lines. Human disturbance in the form of ranching activity is the main noticeable impact. When looking at the specific project area, a large tract of private land has remained intact over the years. Residents and recreation in this area are dependent upon intact landscapes, creating a high sensitivity to change.

Visual Resource Management (VRM) classes along with the corresponding VRM objectives were established in the RGFO in 1996 with the approval of the Royal Gorge Resource Area RMP. Visual Resource Management objectives corresponding to the various management classes provide standards for analyzing and evaluating proposed projects. Projects are evaluated using the Contrast Rating System to determine if it meets VRM objectives established by the RMP.

Most of the Las Animas County project area parcels are located on split-estate lands (private surface), where the BLM does not manage surface uses. However, the surrounding public lands were evaluated in the VRI as a Class IV area. Class IV management allows for activities that require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. Every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements.

The main viewshed for the casual observer is from CR350 with visibility to the west across the landscape of open grasslands and low mesas. The visibility is disrupted, with some development, including a railroad line parallel to CR350 and scattered ranch structures to the west. The eastern side of CR350 is the Pinon Canyon Maneuver site for the U.S. Army. The Santa Fe National Trail crosses 14 sections of the September lease sale proposed parcels. All other proposed lease parcels are 0–7 miles from CR350.

Direct and Indirect Impacts:

For the areas proposed for leasing, the proposed action of identifying parcels for the sale would not change the existing landscape. However, if the lease were to go into production in areas that already have high levels of human modification, the proposed action would introduce visual contrasts but at limited levels given the context of the project area, the level of existing development, and the use of best management practices (BMPs). If leases were developed, structures associated with this activity could be introduced on the landscape such as roads, pads, buildings, and pump infrastructure, potentially creating contrasts in form, texture, color, and line at varying levels. These effects would be evaluated later at the APD stage.

For parcels located on the Santa Fe Trail or within the immediate vicinity, impacts would be noticeable depending on placement of structures, and cumulative impacts to visual resources are anticipated.

Cumulative Impacts:

Any subsequent development associated with the lease would contribute additional contrasts to the environment. In areas where viewers are more sensitive to change, such as near the national trail, the changes associated with oil and gas development would be seen as an incremental impact on visual resources and the overall character of the area. This project would add to the overall cumulative impact on visual resources in these areas.

Potential Future Mitigation:

The BMPs could include painting equipment a proper color that blends with the environment and locating facilities so they are off ridges and mesas, are screened from nearby residences, and decrease visual contrasts with the natural landscape. Considering the area is split-estate, where there is less development, these contrasts would most likely be more readily noticeable due to the lack of other structures or human modifications in the area. BMPs would also be applied to reduce these impacts.

3.4.10 Issue 10: National Trail

What impacts will leasing and potential development have on the Santa Fe National Trail?

Affected Environment:

Most of the September proposed lease sale parcels lie to the northwest of the Santa Fe National Trail. However, 14 sections of the proposed lease parcels are crossed by the national trail. There are very few public roads that provide direct access to the national trail, with most of the route being viewed from CR350, which parallels the trail route to the west. The terrain is open and rolling with a view of the trail and the proposed parcel areas. The bulk of the proposed lease sale parcels lie within 0–7 miles north of where the national trail splits into two parallel segments running north and south.

The 2015 VRI conducted by the BLM identified this area as high in visual resource values associated with scenic quality. An interest in allowing some change was identified with the desire to retain the basic character of the area's ranching and agricultural heritage, combined with the Santa Fe Trail.

Direct and Indirect Impacts:

The proposed action of a lease sale does not affect the viewshed from CR350, but if development is proposed, visual resource impacts could occur. These impacts would need to be evaluated at that time based on site-specific information about the development proposal. See section 3.4.9, Visual Resources.

Cumulative Impacts:

Development associated with the lease sale could have cumulative impacts on visual resources along the national trail. See section 3.4.9.

Potential Future Mitigation:

Best management practices would be applied to reduce impacts to visual resources associated with the national trail. Within parcels that are crossed by the national trail, structures associated with development could be placed within a parcel but avoid the trail corridor.

Chapter 4 – Coordination and Consultation

4.1 Persons/Agencies Consulted

- National Park Service
- Colorado Parks and Wildlife
- Weld County
- Las Animas County

4.2 Native American Tribes Consulted

A consultation with the following potentially interested Native American tribes, for the undertaking, is in progress: Apache Tribe of Oklahoma, Cheyenne and Arapaho Tribes of Oklahoma, Cheyenne River Lakota Tribe, Comanche Tribe of Oklahoma, Crow Creek Sioux, Kiowa Tribe of Oklahoma, Northern Arapaho Tribe, Northern Cheyenne Tribe, Northern Ute Tribe, Oglala Lakota Tribe, Pawnee Tribe, Rosebud Sioux Tribe, Shoshone Tribe, Southern Ute Tribe, Standing Rock Sioux Tribe, and the Ute Mountain Ute Tribe.

4.3 Surface Owner Coordination

A letter was sent to surface owners of split-estate proposed lease parcels.

4.4 List of Preparers and Participants

INTERDISCIPLINARY TEAM REVIEW

Name	Title	Resource
Forrest Cook	Air Quality Scientist	Air Quality
Marie Lawrence	Planning & Environmental Specialist	Project Lead; Planning and Environmental Analysis; Technical Writing and Editing
Daniel Pike	Geologist/Natural Resource Specialist	Hydrology/Water Quality; Geology and Minerals
Amy Stillings	Economist	Socioeconomics; Environmental Justice
Melissa Smeins	Geologist	Solid Minerals; Paleontology; Hazardous Waste
Matt Rustand	Wildlife Biologist	Migratory Birds; Special Status Species; Terrestrial Wildlife
Aaron Richter	Fishery Biologist	Aquatic Wildlife; Wetlands and Riparian Resources; Invasive Species Management; Prime and Unique Farmlands; and Upland Vegetation.
Monica Weimer	Archaeologist	Cultural Resources; Native American Concerns
Linda Skinner	Recreation Planner	Visual Resources; Areas of Critical Environmental Concern; Lands with Wilderness Characteristics; Wilderness Study Areas; Wild and Scenic Rivers; Scenic Trails

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Attachment A - All Proposed Action Parcels with Stipulations for Lease

The Bureau of Land Management, Royal Gorge Field Office, is analyzing 43 parcels containing 67,004.000 acres in the State of Colorado for oil and gas leasing.

THE FOLLOWING ACQUIRED LANDS ARE SUBJECT TO FILINGS IN THE MANNER SPECIFIED IN THE APPLICABLE PORTIONS OF THE REGULATIONS IN 43 CFR, SUBPART 3120.

PARCEL ID: 8563

T.0090N., R.0620W., 6TH PM

Section 17: E2,SW;

U.S. Interest 100.00%

Section 20: W2NE,NENW;

U.S. Interest 100.00%

Weld County

Colorado 600.000 Acres

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8564

T.0090N., R.0620W., 6TH PM

Section 5: Lot 1-4;

U.S. Interest 100.00%

Section 5: S2N2,SWSW,NESE;

U.S. Interest 100.00%

Section 8: W2;

U.S. Interest 100.00%

Weld County

Colorado 719.280 Acres

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8562

T.0090N., R.0630W., 6TH PM

Section 11: NESE;	U.S. Interest 100.00%
Section 12: SENW,SW;	U.S. Interest 100.00%
Section 14: SENE,NESE;	U.S. Interest 100.00%

Weld County
Colorado 320.000 Acres

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

THE FOLLOWING PUBLIC DOMAIN LANDS ARE SUBJECT TO FILINGS IN THE MANNER SPECIFIED IN THE APPLICABLE PORTIONS OF THE REGULATIONS IN 43 CFR, SUBPART 3120.

PARCEL ID: 8592

T.0290S., R.0540W., 6TH PM

Section 1: Lot 1,2,4;
Section 1: SWNE,SWNW,NWSW,SE;
Section 2: Lot 1-3;
Section 2: S2NE,SENE,S2SW;
Section 3: Lot 1,2;
Section 3: SWNE,E2SW,W2SE,SESE;
Section 10: E2,NENW,SESW;
Section 11: S2NE,W2,SE;
Section 12: SWNW,SW;
Section 13: NW;
Section 15: N2NE,SENE;

Las Animas County
Colorado 2482.300 Acres

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8593

T.0290S., R.0540W., 6TH PM

Section 13: SWSW;
Section 14: SESW,SE;
Section 15: E2SW;
Section 22: E2SE,SWSE;
Section 23: E2,E2NW,NWNW,SW;
Section 24: S2NW,SW;
Section 25: E2E2,NWNW;
Section 26: ALL;
Section 27: NENE;
Section 34: W2NE,NENW,NWSE;
Section 35: NENE,S2SW,SWSE;

Las Animas County
Colorado 2480.000 Acres

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8594

T.0290S., R.0540W., 6TH PM

Section 4: Lot 2-4;
Section 4: SWNE,W2SE;
Section 5: Lot 1-4;
Section 6: Lot 1,2;
Section 7: Lot 7;
Section 8: S2NE,SENE;
Section 9: S2NW;
Section 17: S2NE,N2S2,SWSW;
Section 18: Lot 1-8;
Section 18: SESW,S2SE;
Section 19: Lot 8;
Section 19: NE,E2W2,W2SE;
Section 30: Lot 1-3;
Section 30: NENW;

Las Animas County
Colorado 2094.500 Acres

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8595

T.0290S., R.0540W., 6TH PM

Section 20: S2NE,SENW,S2;
Section 29: ALL;
Section 30: SESW,SE;
Section 31: Lot 3-8;
Section 31: NE,E2W2,N2SE,SWSE;
Section 32: N2,N2SW,SESW,NWSE;

Las Animas County
Colorado 2460.520 Acres

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8596

T.0290S., R.0540W., 6TH PM

Section 21: W2E2,W2;
Section 27: NWSW;
Section 28: NWNE,NENW,W2NW,S2;
Section 33: NWNE,NW,N2SE,SESE;
Section 34: W2SW;

Las Animas County
Colorado 1400.000 Acres

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8576

T.0290S., R.0550W., 6TH PM

Section 1: Lot 4;
Section 1: SWNW,S2;
Section 2: SENE,E2SW,SWSW,E2SE;
Section 11: NENE,SWNE,W2,SE;
Section 12: W2SW,SESE;

Las Animas County
Colorado 1318.950 Acres

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8577

T.0290S., R.0550W., 6TH PM

Section 3: SWNE,SE;
Section 4: Lot 1,2,4;
Section 4: S2N2,S2;
Section 9: ALL;
Section 10: ALL;

Las Animas County
Colorado 2081.160 Acres

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8578

T.0290S., R.0550W., 6TH PM

Section 5: Lot 1-3;
Section 5: S2NE,SENW,S2;
Section 6: Lot 3-7;
Section 6: S2NE,SENW,E2SW,NWSE;
Section 7: E2NE,E2NW,SWSE;
Section 8: N2,SW,NWSE;

Las Animas County
Colorado 1720.750 Acres

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8579

T.0290S., R.0550W., 6TH PM

Section 13: N2,N2S2,SWSW,SESE;
Section 14: ALL;
Section 15: ALL;

Las Animas County
Colorado 1840.000 Acres

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8580

T.0290S., R.0550W., 6TH PM

Section 17: S2N2,SE;
Section 20: N2NE,SWNW,NWSW,S2S2;
Section 21: N2NW,W2SW,SESW,SE;
Section 28: N2NE,NW;
Section 28: N2SW,SESW,W2SE,SESE;
Section 29: E2NE,NESE;

Las Animas County
Colorado 1600.000 Acres

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8581

T.0290S., R.0550W., 6TH PM

Section 18: Lot 2-4;
Section 18: W2NE,SENE,E2W2,SE;
Section 19: NE,NENW;
Section 19: SESW,E2SE,SWSE;
Section 30: Lot 2-4;
Section 30: E2NE,NWNE,NENW;
Section 30: SESW,NESE,SWSE;

Las Animas County
Colorado 1321.440 Acres

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8582

T.0290S., R.0550W., 6TH PM

Section 22: S2N2,S2;
Section 26: ALL;
Section 27: E2,NWNW,SW;

Las Animas County
Colorado 1640.000 Acres

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8583

T.0290S., R.0550W., 6TH PM

Section 23: ALL;
Section 24: W2,S2SE;
Section 25: ALL;

Las Animas County
Colorado 1680.000 Acres

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8584

T.0290S., R.0550W., 6TH PM

Section 32: SESW,SESE;
Section 33: E2,E2NW,SWNW,S2SW;
Section 34: ALL;
Section 35: W2W2;

Las Animas County

Colorado 1400.000 Acres

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8597

T.0300S., R.0550W., 6TH PM

Section 1: S2NW,SW;
Section 2: Lot 1-4;
Section 2: S2N2,S2;
Section 11: N2,SW,SWSE;
Section 12: S2NE,NW,E2SW,SE;

Las Animas County
Colorado 1883.840 Acres

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8598

T.0300S., R.0550W., 6TH PM

Section 3: Lot 1-4;
Section 3: S2NE,SWNW,W2SW,N2SE;
Section 4: Lot 1-4;
Section 4: SWSW;
Section 9: NENE,W2,SWSE;
Section 10: NENE,E2W2,NWNW,SE;

Las Animas County
Colorado 1452.480 Acres

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8599

T.0300S., R.0550W., 6TH PM

Section 5: Lot 2-4;
Section 5: SWNE,S2NW,S2;
Section 6: Lot 1-7;
Section 6: S2NE,SE,SW,E2SW,SE;
Section 7: Lot 1;

Las Animas County
Colorado 1244.550 Acres

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8600

T.0300S., R.0550W., 6TH PM

Section 7: Lot 3,4;
Section 7: SE,SW,SE;
Section 8: S2;
Section 17: W2;
Section 18: Lot 1-4;
Section 18: E2,E2W2;
Section 19: Lot 1,2;
Section 19: NWNE,E2NW,NESW,NESE;
Section 20: N2SW;

Las Animas County
Colorado 1932.000 Acres

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8601

T.0300S., R.0550W., 6TH PM

Section 13: SWSW,SESE;
Section 13: N2NE,SENE,S2NW;
Section 14: NWNE,S2NE,W2,S2SE;
Section 15: NE,N2NW,SENE,SESE;
Section 23: N2NE,NWNW;
Section 24: NWNW;

Las Animas County
Colorado 1280.000 Acres

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8602

T.0300S., R.0550W., 6TH PM

Section 22: E2SE;
Section 23: NESW,S2S2;
Section 24: S2SW,SE;
Section 25: N2N2,SWNW,W2SW,SESW;
Section 26: N2,S2SW,W2SE;
Section 27: NE,NENW,E2SE;
Section 34: NE,S2SW,E2SE;
Section 35: W2NE,E2NW,NWNW;

Las Animas County
Colorado 2120.000 Acres

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8603

T.0300S., R.0550W., 6TH PM

Section 21: NE,E2NW,E2SE;

Section 22: SWSW;

Section 27: W2NW,NWSW;

Section 28: E2;

Las Animas County

Colorado 800.000 Acres

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8604

T.0300S., R.0550W., 6TH PM

Section 29: E2SW;

Section 30: Lot 1-4;

Section 30: NE,E2W2,W2SE;

Section 31: Lot 3,4;

Section 31: E2SW,S2SE;

Section 32: SWNE,S2NW,S2;

Las Animas County

Colorado 1325.120 Acres

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8585

T.0280S., R.0600W., 6TH PM

Section 4: SWNW,NWSW;
Section 5: S2N2,S2;
Section 6: Lot 3-7;
Section 6: S2NE,SE,SE,
Section 7: Lot 1-4;
Section 7: E2,E2W2;
Section 8: S2;

Las Animas County
Colorado 2127.710 Acres

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8586

T.0280S., R.0600W., 6TH PM

Section 2: Lot 3,4;
Section 2: SWNW,NWSW;
Section 3: Lot 1-4;
Section 3: S2N2,N2S2,S2SW,SWSE;
Section 10: W2NE,W2;
Section 11: ALL;
Section 12: SWSE;

Las Animas County
Colorado 1845.650 Acres

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8587

T.0280S., R.0600W., 6TH PM

Section 18: Lot 1-4;
Section 18: E2,E2W2;
Section 19: Lot 1-4;
Section 19: E2,E2W2;
Section 30: Lot 1-4;
Section 30: E2,E2W2;

Las Animas County
Colorado 2008.260 Acres

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8588

T.0280S., R.0600W., 6TH PM

Section 28: N2N2,S2S2;
Section 29: S2S2;
Section 31: Lot 1-4;
Section 31: E2,E2W2;
Section 32: ALL;
Section 33: N2;

Las Animas County
Colorado 2108.810 Acres

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8589

T.0280S., R.0600W., 6TH PM

Section 17: ALL;
Section 20: ALL;
Section 21: W2;

Las Animas County
Colorado 1600.000 Acres

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8590

T.0280S., R.0600W., 6TH PM

Section 13: ALL;
Section 14: ALL;
Section 15: ALL;
Section 22: ALL;

Las Animas County
Colorado 2560.000 Acres

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8591

T.0280S., R.0600W., 6TH PM

Section 23: ALL;
Section 25: N2;
Section 26: N2,N2SE,N2S2SE,SWSWSE;
Section 27: N2;
Section 35: E2NE,SEWNNE,NESW,SE;

Las Animas County
Colorado 2020.000 Acres

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8574

T.0290S., R.0600W., 6TH PM

Section 1: Lot 1-4;
Section 1: S2N2,S2;
Section 2: Lot 1-4;
Section 2: S2NE,N2SE;
Section 3: Lot 1 EXCLD RR C-093808;

Las Animas County
Colorado 977.670 Acres

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8575

T.0290S., R.0600W., 6TH PM

Section 6: Lot 3;
Section 7: Lot 1,2;
Section 7: W2E2,NENW,SESW;
Section 8: E2NE;
Section 9: S2NE EXCLD PLO 104-201;
Section 9: EXCLD RR C-093808;
Section 17: EXCLD PLO 102-201;
Section 17: N2N2,SWNW,NWSW,S2SW;
Section 17: EXCLD RR C-093808;

Las Animas County
Colorado 768.230 Acres

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8565

T.0310S., R.0600W., 6TH PM

Section 1: SW,W2SE EXCL COC38142;
Section 2: S2NW,S2 EXCL COC38142;
Section 3: S2NE,SE EXCL COC 38142;
Section 4: S2NE,SE;
Section 4: LOT 1,2 EXCL COC38142;
Section 12: N2SW,SWSW,NWSE;
Section 12: N2 EXCL COC38142;

Las Animas County
Colorado 1495.250 Acres

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8568

T.0310S., R.0600W., 6TH PM

Section 9: N2NE,SE;
Section 10: ALL;
Section 11: N2,N2SW,SWSW,SE;
Section 13: W2NW,SENE,N2SW;
Section 14: NE,W2SW,NESE;

Las Animas County
Colorado 1960.000 Acres

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8569

T.0310S., R.0600W., 6TH PM

Section 15: W2E2,W2,SESE;
Section 22: E2E2,W2NW;
Section 23: SWNE,S2NW;
Section 23: SW,NESE,W2SE;

Las Animas County
Colorado 1160.000 Acres

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8570

T.0310S., R.0600W., 6TH PM

Section 25: W2SW,SESW;
Section 26: W2NE,W2,SE;
Section 35: ALL;

Las Animas County
Colorado 1320.000 Acres

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8572

T.0310S., R.0600W., 6TH PM

Section 27: E2,E2NW,SWNW,SW;
Section 28: S2N2,S2;
Section 33: ALL;
Section 34: E2,NW,N2SW,SWSW;

Las Animas County
Colorado 2320.000 Acres

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8573

T.0310S., R.0600W., 6TH PM

Section 29: S2N2,N2SW,SESW,SE;
Section 31: SENW,NESW,SESE;
Section 32: E2,E2NW,SWNW,SW;

Las Animas County
Colorado 1160.000 Acres

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8566

T.0290S., R.0610W., 6TH PM

Section 25: E2 EXCLD C0124534 PLO;
Section 25: EXCLD RR ROW C093808;

Las Animas County

Colorado 295.530 Acres

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8567

T.0290S., R.0610W., 6TH PM
Section 17: N2N2;

Las Animas County
Colorado 160.000 Acres

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8571

T.0290S., R.0610W., 6TH PM
Section 10: W2;
Section 11: ALL;
Section 13: E2;
Section 14: W2;
Section 15: N2;

Las Animas County
Colorado 1920.000 Acres

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

DOI-BLM-CO-F020-2020-0024 EA
Attachments

PVT/BLM; CORM: RGFO

Attachment B - Recommended Parcels for Deferral

No parcels are recommended for deferral in the September 2020 Oil and Gas Lease Sale.

Attachment C - Preferred Alternative- Parcels with Stipulations for Lease

The Bureau of Land Management, Royal Gorge Field Office, is analyzing 43 parcels containing 67,004.000 acres in the State of Colorado for oil and gas leasing.

THE FOLLOWING ACQUIRED LANDS ARE SUBJECT TO FILINGS IN THE MANNER SPECIFIED IN THE APPLICABLE PORTIONS OF THE REGULATIONS IN 43 CFR, SUBPART 3120.

PARCEL ID: 8563

T.0090N., R.0620W., 6TH PM

Section 17: E2,SW;

U.S. Interest 100.00%

Section 20: W2NE,NENW;

U.S. Interest 100.00%

Weld County

Colorado 600.000 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-09 to protect big game winter habitat (Pronghorn).

All lands are subject to Exhibit CO-09 to protect big game winter habitat (Mule Deer)

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-28 to protect perennial water impoundments and streams, and/or riparian/wetland vegetation zones.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8564

T.0090N., R.0620W., 6TH PM

Section 5: Lot 1-4;

U.S. Interest 100.00%

Section 5: S2N2,SWSW,NESE;
Section 8: W2;

U.S. Interest 100.00%
U.S. Interest 100.00%

Weld County
Colorado 719.280 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-09 to protect big game winter habitat (Pronghorn).

All lands are subject to Exhibit CO-09 to protect big game winter habitat (Mule Deer).

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-28 to protect perennial water impoundments and streams,
and/or riparian/wetland vegetation zones.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened,
endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8562

T.0090N., R.0630W., 6TH PM

Section 11: NESE;
Section 12: SENW,SW;
Section 14: SENE,NESE;

U.S. Interest 100.00%
U.S. Interest 100.00%
U.S. Interest 100.00%

Weld County
Colorado 320.000 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-09 to protect big game winter habitat (Pronghorn).

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-28 to protect perennial water impoundments and streams,
and/or riparian/wetland vegetation zones.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

THE FOLLOWING PUBLIC DOMAIN LANDS ARE SUBJECT TO FILINGS IN THE MANNER SPECIFIED IN THE APPLICABLE PORTIONS OF THE REGULATIONS IN 43 CFR, SUBPART 3120.

PARCEL ID: 8592

T.0290S., R.0540W., 6TH PM

Section 1: Lot 1,2,4;
Section 1: SWNE,SWNW,NWSW,SE;
Section 2: Lot 1-3;
Section 2: S2NE,SENE,S2SW;
Section 3: Lot 1,2;
Section 3: SWNE,E2SW,W2SE,SESE;
Section 10: E2,NENW,SESW;
Section 11: S2NE,W2,SE;
Section 12: SWNW,SW;
Section 13: NW;
Section 15: N2NE,SENE;

Las Animas County
Colorado 2482.300 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-28 to protect perennial water impoundments and streams, and/or riparian/wetland vegetation zones.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8593

T.0290S., R.0540W., 6TH PM

Section 13: SWSW;
Section 14: SESW,SE;
Section 15: E2SW;
Section 22: E2SE,SWSE;
Section 23: E2,E2NW,NWNW,SW;
Section 24: S2NW,SW;
Section 25: E2E2,NWNW;
Section 26: ALL;
Section 27: NENE;
Section 34: W2NE,NENW,NWSE;
Section 35: NENE,S2SW,SWSE;

Las Animas County
Colorado 2480.000 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-28 to protect perennial water impoundments and streams, and/or riparian/wetland vegetation zones.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8594

T.0290S., R.0540W., 6TH PM

Section 4: Lot 2-4;
Section 4: SWNE,W2SE;
Section 5: Lot 1-4;
Section 6: Lot 1,2;
Section 7: Lot 7;
Section 8: S2NE,SENE;

Section 9: S2NW;
Section 17: S2NE,N2S2,SWSW;
Section 18: Lot 1-8;
Section 18: SESW,S2SE;
Section 19: Lot 8;
Section 19: NE,E2W2,W2SE;
Section 30: Lot 1-3;
Section 30: NENW;

Las Animas County
Colorado 2094.500 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-28 to protect perennial water impoundments and streams, and/or riparian/wetland vegetation zones.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8595

T.0290S., R.0540W., 6TH PM

Section 20: S2NE,SESW,S2;
Section 29: ALL;
Section 30: SESW,SE;
Section 31: Lot 3-8;
Section 31: NE,E2W2,N2SE,SWSE;
Section 32: N2,N2SW,SESW,NWSE;

Las Animas County
Colorado 2460.520 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-28 to protect perennial water impoundments and streams, and/or riparian/wetland vegetation zones.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8596

T.0290S., R.0540W., 6TH PM

Section 21: W2E2,W2;

Section 27: NWSW;

Section 28: NWNE,NENW,W2NW,S2;

Section 33: NWNE,NW,N2SE,SESE;

Section 34: W2SW;

Las Animas County
Colorado 1400.000 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-28 to protect perennial water impoundments and streams, and/or riparian/wetland vegetation zones.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8576

T.0290S., R.0550W., 6TH PM

Section 1: Lot 4;
Section 1: SWNW,S2;
Section 2: SENE,E2SW,SWSW,E2SE;
Section 11: NENE,SWNE,W2,SE;
Section 12: W2SW,SESE;

Las Animas County
Colorado 1318.950 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-28 to protect perennial water impoundments and streams, and/or riparian/wetland vegetation zones.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8577

T.0290S., R.0550W., 6TH PM

Section 3: SWNE,SE;
Section 4: Lot 1,2,4;
Section 4: S2N2,S2;
Section 9: ALL;
Section 10: ALL;

Las Animas County
Colorado 2081.160 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-28 to protect perennial water impoundments and streams, and/or riparian/wetland vegetation zones.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8578

T.0290S., R.0550W., 6TH PM

Section 5: Lot 1-3;
Section 5: S2NE,SENE,S2;
Section 6: Lot 3-7;
Section 6: S2NE,SENE,E2SW,NWSE;
Section 7: E2NE,E2NW,SWSE;
Section 8: N2,SW,NWSE;

Las Animas County
Colorado 1720.750 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-09 to protect big game winter habitat (bighorn sheep)

All lands are subject to Exhibit CO-12 to protect big horn sheep lambing areas.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-28 to protect perennial water impoundments and streams, and/or riparian/wetland vegetation zones.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8579

T.0290S., R.0550W., 6TH PM

Section 13: N2,N2S2,SWSW,SESE;

Section 14: ALL;

Section 15: ALL;

Las Animas County

Colorado 1840.000 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-28 to protect perennial water impoundments and streams, and/or riparian/wetland vegetation zones.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8580

T.0290S., R.0550W., 6TH PM

Section 17: S2N2,SE;

Section 20: N2NE,SWNW,NWSW,S2S2;

Section 21: N2NW,W2SW,SESW,SE;

Section 28: N2NE,NW;

Section 28: N2SW,SESW,W2SE,SESE;

Section 29: E2NE,NESE;

Las Animas County

Colorado 1600.000 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-28 to protect perennial water impoundments and streams, and/or riparian/wetland vegetation zones.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8581

T.0290S., R.0550W., 6TH PM

Section 18: Lot 2-4;
Section 18: W2NE,SENE,E2W2,SE;
Section 19: NE,NENW;
Section 19: SESW,E2SE,SWSE;
Section 30: Lot 2-4;
Section 30: E2NE,NWNE,NENW;
Section 30: SESW,NESE,SWSE;

Las Animas County
Colorado 1321.440 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-09 to protect big game winter habitat (bighorn sheep).

All lands are subject to Exhibit CO-12 to protect Rocky Mountain bighorn sheep lambing.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-28 to protect perennial water impoundments and streams, and/or riparian/wetland vegetation zones.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8582

T.0290S., R.0550W., 6TH PM

Section 22: S2N2,S2;
Section 26: ALL;
Section 27: E2,NWNW,SW;

Las Animas County
Colorado 1640.000 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-28 to protect perennial water impoundments and streams, and/or riparian/wetland vegetation zones.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8583

T.0290S., R.0550W., 6TH PM

Section 23: ALL;
Section 24: W2,S2SE;
Section 25: ALL;

Las Animas County
Colorado 1680.000 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-28 to protect perennial water impoundments and streams, and/or riparian/wetland vegetation zones.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8584

T.0290S., R.0550W., 6TH PM

Section 32: SESW,SESE;

Section 33: E2,E2NW,SWNW,S2SW;

Section 34: ALL;

Section 35: W2W2;

Las Animas County
Colorado 1400.000 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-09 to protect big game winter habitat (bighorn sheep).

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-28 to protect perennial water impoundments and streams, and/or riparian/wetland vegetation zones.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8597

T.0300S., R.0550W., 6TH PM

Section 1: S2NW,SW;

Section 2: Lot 1-4;
Section 2: S2N2,S2;
Section 11: N2,SW,SWSE;
Section 12: S2NE,NW,E2SW,SE;

Las Animas County
Colorado 1883.840 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-28 to protect perennial water impoundments and streams, and/or riparian/wetland vegetation zones.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8598

T.0300S., R.0550W., 6TH PM

Section 3: Lot 1-4;
Section 3: S2NE,SWNW,W2SW,N2SE;
Section 4: Lot 1-4;
Section 4: SWSW;
Section 9: NENE,W2,SWSE;
Section 10: NENE,E2W2,NWNW,SE;

Las Animas County
Colorado 1452.480 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-28 to protect perennial water impoundments and streams, and/or riparian/wetland vegetation zones.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8599

T.0300S., R.0550W., 6TH PM

Section 5: Lot 2-4;
Section 5: SWNE,S2NW,S2;
Section 6: Lot 1-7;
Section 6: S2NE,SE,SE;
Section 7: Lot 1;

Las Animas County
Colorado 1244.550 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-09 to protect big game winter range (bighorn sheep).

All lands are subject to Exhibit CO-12 to protect Rocky Mountain bighorn sheep lambing.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-28 to protect perennial water impoundments and streams, and/or riparian/wetland vegetation zones.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8600

T.0300S., R.0550W., 6TH PM

Section 7: Lot 3,4;
Section 7: SESW,SE;
Section 8: S2;
Section 17: W2;
Section 18: Lot 1-4;
Section 18: E2,E2W2;
Section 19: Lot 1,2;
Section 19: NWNE,E2NW,NESW,NESE;
Section 20: N2SW;

Las Animas County
Colorado 1932.000 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-09 to protect big game winter habitat (bighorn sheep)

All lands are subject to Exhibit CO-12 to protect Rocky Mountain bighorn sheep lambing.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-28 to protect perennial water impoundments and streams, and/or riparian/wetland vegetation zones.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8601

T.0300S., R.0550W., 6TH PM

Section 13: SWSW,SESE;
Section 13: N2NE,SENE,S2NW;
Section 14: NWNE,S2NE,W2,S2SE;
Section 15: NE,N2NW,SENE,SESE;
Section 23: N2NE,NWNW;
Section 24: NWNW;

Las Animas County
Colorado 1280.000 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-28 to protect perennial water impoundments and streams, and/or riparian/wetland vegetation zones.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8602

T.0300S., R.0550W., 6TH PM

Section 22: E2SE;
Section 23: NESW,S2S2;
Section 24: S2SW,SE;
Section 25: N2N2,SWNW,W2SW,SESW;
Section 26: N2,S2SW,W2SE;
Section 27: NE,NENW,E2SE;
Section 34: NE,S2SW,E2SE;
Section 35: W2NE,E2NW,NWNW;

Las Animas County
Colorado 2120.000 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-28 to protect perennial water impoundments and streams, and/or riparian/wetland vegetation zones.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8603

T.0300S., R.0550W., 6TH PM

Section 21: NE,E2NW,E2SE;

Section 22: SWSW;

Section 27: W2NW,NWSW;

Section 28: E2;

Las Animas County
Colorado 800.000 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-28 to protect perennial water impoundments and streams, and/or riparian/wetland vegetation zones.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8604

T.0300S., R.0550W., 6TH PM

Section 29: E2SW;

Section 30: Lot 1-4;

Section 30: NE,E2W2,W2SE;

Section 31: Lot 3,4;

Section 31: E2SW,S2SE;

Section 32: SWNE,S2NW,S2;

Las Animas County
Colorado 1325.120 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-09 to protect big game winter habitat (bighorn sheep)

All lands are subject to Exhibit CO-12 to protect Rocky Mountain bighorn sheep lambing.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-28 to protect perennial water impoundments and streams, and/or riparian/wetland vegetation zones.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8585

T.0280S., R.0600W., 6TH PM

Section 4: SWNW,NWSW;
Section 5: S2N2,S2;
Section 6: Lot 3-7;
Section 6: S2NE,SE,SE;
Section 7: Lot 1-4;
Section 7: E2,E2W2;
Section 8: S2;

Las Animas County
Colorado 2127.710 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-28 to protect perennial water impoundments and streams, and/or riparian/wetland vegetation zones.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8586

T.0280S., R.0600W., 6TH PM

Section 2: Lot 3,4;
Section 2: SWNW,NWSW;
Section 3: Lot 1-4;
Section 3: S2N2,N2S2,S2SW,SWSE;
Section 10: W2NE,W2;
Section 11: ALL;
Section 12: SWSE;

Las Animas County
Colorado 1845.650 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-28 to protect perennial water impoundments and streams, and/or riparian/wetland vegetation zones.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8587

T.0280S., R.0600W., 6TH PM

Section 18: Lot 1-4;
Section 18: E2,E2W2;
Section 19: Lot 1-4;
Section 19: E2,E2W2;
Section 30: Lot 1-4;
Section 30: E2,E2W2;

Las Animas County
Colorado 2008.260 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-28 to protect perennial water impoundments and streams, and/or riparian/wetland vegetation zones.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8588

T.0280S., R.0600W., 6TH PM

Section 28: N2N2,S2S2;
Section 29: S2S2;
Section 31: Lot 1-4;
Section 31: E2,E2W2;
Section 32: ALL;
Section 33: N2;

Las Animas County
Colorado 2108.810 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-28 to protect perennial water impoundments and streams, and/or riparian/wetland vegetation zones.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8589

T.0280S., R.0600W., 6TH PM

Section 17: ALL;

Section 20: ALL;

Section 21: W2;

Las Animas County

Colorado 1600.000 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-28 to protect perennial water impoundments and streams, and/or riparian/wetland vegetation zones.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8590

T.0280S., R.0600W., 6TH PM

Section 13: ALL;

Section 14: ALL;
Section 15: ALL;
Section 22: ALL;

Las Animas County
Colorado 2560.000 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-28 to protect perennial water impoundments and streams, and/or riparian/wetland vegetation zones.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8591

T.0280S., R.0600W., 6TH PM

Section 23: ALL;
Section 25: N2;
Section 26: N2,N2SE,N2S2SE,SWSWSE;
Section 27: N2;
Section 35: E2NE,SE,ENE,ENE,ENE,ENE,ENE,ENE;

Las Animas County
Colorado 2020.000 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-28 to protect perennial water impoundments and streams, and/or riparian/wetland vegetation zones.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8574

T.0290S., R.0600W., 6TH PM

Section 1: Lot 1-4;
Section 1: S2N2,S2;
Section 2: Lot 1-4;
Section 2: S2NE,N2SE;
Section 3: Lot 1 EXCLD RR C-093808;

Las Animas County

Colorado 977.670 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-28 to protect perennial water impoundments and streams, and/or riparian/wetland vegetation zones.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8575

T.0290S., R.0600W., 6TH PM

Section 6: Lot 3;
Section 7: Lot 1,2;
Section 7: W2E2,NENW,SESW;
Section 8: E2NE;
Section 9: S2NE EXCLD PLO 104-201;
Section 9: EXCLD RR C-093808;

Section 17: EXCLD PLO 102-201;
Section 17: N2N2,SWNW,NWSW,S2SW;
Section 17: EXCLD RR C-093808;

Las Animas County
Colorado 768.230 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-28 to protect perennial water impoundments and streams, and/or riparian/wetland vegetation zones.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

All lands are subject to Exhibit RG-06 to protect Least Tern and Piping Plover Habitat.

PVT/BLM; CORM: RGFO

PARCEL ID: 8565

T.0310S., R.0600W., 6TH PM

Section 1: SW,W2SE EXCL COC38142;
Section 2: S2NW,S2 EXCL COC38142;
Section 3: S2NE,SE EXCL COC 38142;
Section 4: S2NE,SE;
Section 4: LOT 1,2 EXCL COC38142;
Section 12: N2SW,SWSW,NWSE;
Section 12: N2 EXCL COC38142;

Las Animas County
Colorado 1495.250 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-28 to protect perennial water impoundments and streams, and/or riparian/wetland vegetation zones.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8568

T.0310S., R.0600W., 6TH PM

Section 9: N2NE,SE;

Section 10: ALL;

Section 11: N2,N2SW,SWSW,SE;

Section 13: W2NW,SENW,N2SW;

Section 14: NE,W2SW,NESE;

Las Animas County
Colorado 1960.000 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-28 to protect perennial water impoundments and streams, and/or riparian/wetland vegetation zones.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8569

T.0310S., R.0600W., 6TH PM

Section 15: W2E2,W2,SESE;

Section 22: E2E2,W2NW;

Section 23: SWNE,S2NW;
Section 23: SW,NESE,W2SE;

Las Animas County
Colorado 1160.000 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-28 to protect perennial water impoundments and streams, and/or riparian/wetland vegetation zones.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8570

T.0310S., R.0600W., 6TH PM

Section 25: W2SW,SESW;
Section 26: W2NE,W2,SE;
Section 35: ALL;

Las Animas County
Colorado 1320.000 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-28 to protect perennial water impoundments and streams, and/or riparian/wetland vegetation zones.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8572

T.0310S., R.0600W., 6TH PM

Section 27: E2,E2NW,SWNW,SW;

Section 28: S2N2,S2;

Section 33: ALL;

Section 34: E2,NW,N2SW,SWSW;

Las Animas County
Colorado 2320.000 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-28 to protect perennial water impoundments and streams, and/or riparian/wetland vegetation zones.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8573

T.0310S., R.0600W., 6TH PM

Section 29: S2N2,N2SW,SESW,SE;

Section 31: SENW,NESW,SESE;

Section 32: E2,E2NW,SWNW,SW;

Las Animas County
Colorado 1160.000 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-28 to protect perennial water impoundments and streams, and/or riparian/wetland vegetation zones.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8566

T.0290S., R.0610W., 6TH PM

Section 25: E2 EXCLD C0124534 PLO;

Section 25: EXCLD RR ROW C093808;

Las Animas County

Colorado 295.530 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8567

T.0290S., R.0610W., 6TH PM

Section 17: N2N2;

Las Animas County

Colorado 160.000 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

PARCEL ID: 8571

T.0290S., R.0610W., 6TH PM

Section 10: W2;
Section 11: ALL;
Section 13: E2;
Section 14: W2;
Section 15: N2;

Las Animas County
Colorado 1920.000 Acres

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-28 to protect perennial water impoundments and streams, and/or riparian/wetland vegetation zones.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate, or other special status plant or animal

All lands are subject to Exhibit CO-39 to protect cultural resources

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis

PVT/BLM; CORM: RGFO

Attachment D - Stipulation Exhibits

EXHIBIT CO-03

Lease Number: <LEASE_NUMBER>

NO SURFACE OCCUPANCY STIPULATION

No surface occupancy or use is allowed on the lands described below (legal description or other description):

<LEGAL_DESCRIPTIONS>

For the purpose of:

To protect raptor nests within a one-eighth mile radius from the site.

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820.)

Exception Criteria:

An exception may be granted depending on current usage, or on the geographical relationship to topographic barriers and vegetation screening.

EXHIBIT CO-09

Lease Number: <LEASE_NUMBER>

TIMING LIMITATION STIPULATION

No surface use is allowed during the following time period(s). This stipulation does not apply to operation and maintenance of production facilities.

December 1 through April 30

On the lands described below:

<LEGAL_DESCRIPTIONS>

For the purpose of (reasons):

To protect big game (mule deer, elk, pronghorn antelope, and bighorn sheep) winter range, including crucial winter habitat and other definable winter range as mapped by the Colorado Division of Wildlife. This may apply to sundry notice that require an environmental analysis.

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of the stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820.)

Exception Criteria:

An exception may be granted under mild winter conditions for the last 60 days of the closure.

EXHIBIT CO-12

Lease Number: <LEASE_NUMBER>

TIMING LIMITATION STIPULATION

No surface use is allowed during the following time period(s). This stipulation does not apply to operation and maintenance of production facilities.

May 1 through July 15

On the lands described below:

<LEGAL_DESCRIPTIONS>

For the purpose of (reasons):

To protect Rocky Mountain bighorn sheep lambing

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of the stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820.)

EXHIBIT CO-18

Lease Number: <LEASE_NUMBER>

TIMING LIMITATION STIPULATION

No surface use is allowed during the following time period(s). This stipulation does not apply to operation and maintenance of production facilities.

February 1 through August 15

On the lands described below:

<LEGAL_DESCRIPTIONS>

For the purpose of (reasons):

To protect raptor (this includes golden eagles, all accipiters, falcons [except the kestrels], all butteos, and owls) nesting and fledgling habitat during usage for one-quarter mile around the nest site.

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of the stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820.)

Exception Criteria:

Exceptions may be granted during years when the nest site is unoccupied, when occupancy ends by or after May 15, or once the young have fledged and dispersed from the nest.

EXHIBIT CO-19

Lease Number: <LEASE_NUMBER>

TIMING LIMITATION STIPULATION

No surface use is allowed during the following time period(s). This stipulation does not apply to operation and maintenance of production facilities.

February 1 through August 15

On the lands described below:

<LEGAL_DESCRIPTIONS>

For the purpose of (reasons):

To protect ferruginous hawk nesting and fledgling habitat during usage for a one-quarter mile buffer around the nest.

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of the stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820.)

Exception Criteria:

Exceptions may be granted during years when a nest site is unoccupied, when occupancy ends by or after May 15, or once the young have fledged and dispersed from the nest.

EXHIBIT CO-28

Lease Number: <LEASE_NUMBER>

CONTROLLED SURFACE USE STIPULATION

Surface occupancy or use is subject to the following special operating constraints.

On the lands described below:

<LEGAL_DESCRIPTIONS>

For the purpose of:

To protect perennial water impoundments and streams, and/or riparian/wetland vegetation by moving oil and gas exploration and development beyond the riparian vegetation zone.

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820. See also Geothermal PEIS ROD section 2.3.3 at page 2-6.)

Exception Criteria:

Exceptions may be granted only if an on-site impact analysis shows no degradation of the resource values.

EXHIBIT CO-34

Lease Number: <LEASE_NUMBER>

ENDANGERED SPECIES ACT SECTION 7 CONSULTATION STIPULATION

The lease area may now or hereafter contain plants, animals, or their habitats determined to be threatened, endangered, or other special status species. The BLM may recommend modifications to exploration and development proposals to further its conservation and management objective to avoid BLM-approved activity that will contribute to a need to list such a species or their habitat. The BLM may require modifications to or disapprove proposed activity that is likely to result in jeopardy to the continued existence of a proposed or listed threatened or endangered species or result in the destruction or adverse modification of a designated or proposed critical habitat. The BLM will not approve any ground-disturbing activity that may affect any such species or critical habitat until it completes its obligations under applicable requirements of the Endangered Species Act as amended, 16 U.S.C. § 1531 et seq., including completion of any required procedure for conference or consultation.

EXHIBIT CO-39

Lease Number: <LEASE_NUMBER>

CONTROLLED SURFACE USE STIPULATION

This lease may be found to contain historic properties and/or resources protected under the National Historic Preservation Act (NHPA), American Indian Religious Freedom Act, Native American Graves Protection and Repatriation Act, E.O.13007, or other statutes and executive orders. The BLM will not approve any ground disturbing activities that may affect any such properties or resources until it completes its obligations under applicable requirements of the NHPA and other authorities. The BLM may require modification to exploration or development proposals to protect such properties, or disapprove any activity that is likely to result in adverse effects that cannot be successfully avoided, minimized or mitigated.

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820.)

EXHIBIT CO-56

Lease Number: <LEASE_NUMBER>

LEASE NOTICE

Due to potential air quality concerns, supplementary air quality analysis may be required for any proposed development of this lease. This may include preparing a comprehensive emissions inventory, performing air quality modeling, and initiating interagency consultation with affected land managers and air quality regulators to determine potential mitigation options for any predicted significant impacts from the proposed development. Potential mitigation may include limiting the time, place, and pace of any proposed development, as well as providing for the best air quality control technology and/or management practices necessary to achieve area-wide air resource protection objectives. Mitigation measures would be analyzed through the appropriate level of NEPA analysis to determine effectiveness, and will be required or implemented as a permit condition of approval (COA). At a minimum, all projects and permitted uses implemented under this lease will comply with all applicable National Ambient Air Quality Standards and ensure Air Quality Related Values are protected in nearby Class I or Sensitive Class II areas that are afforded additional air quality protection under the Clean Air Act (CAA).

On the lands described below:

<LEGAL_DESCRIPTIONS>

EXHIBIT RG-06

Lease Number: <LEASE_NUMBER>

TIMING LIMITATION STIPULATION

No surface use is allowed during the following time period(s). This stipulation does not apply to operation and maintenance of production facilities.

April 1 through July 31

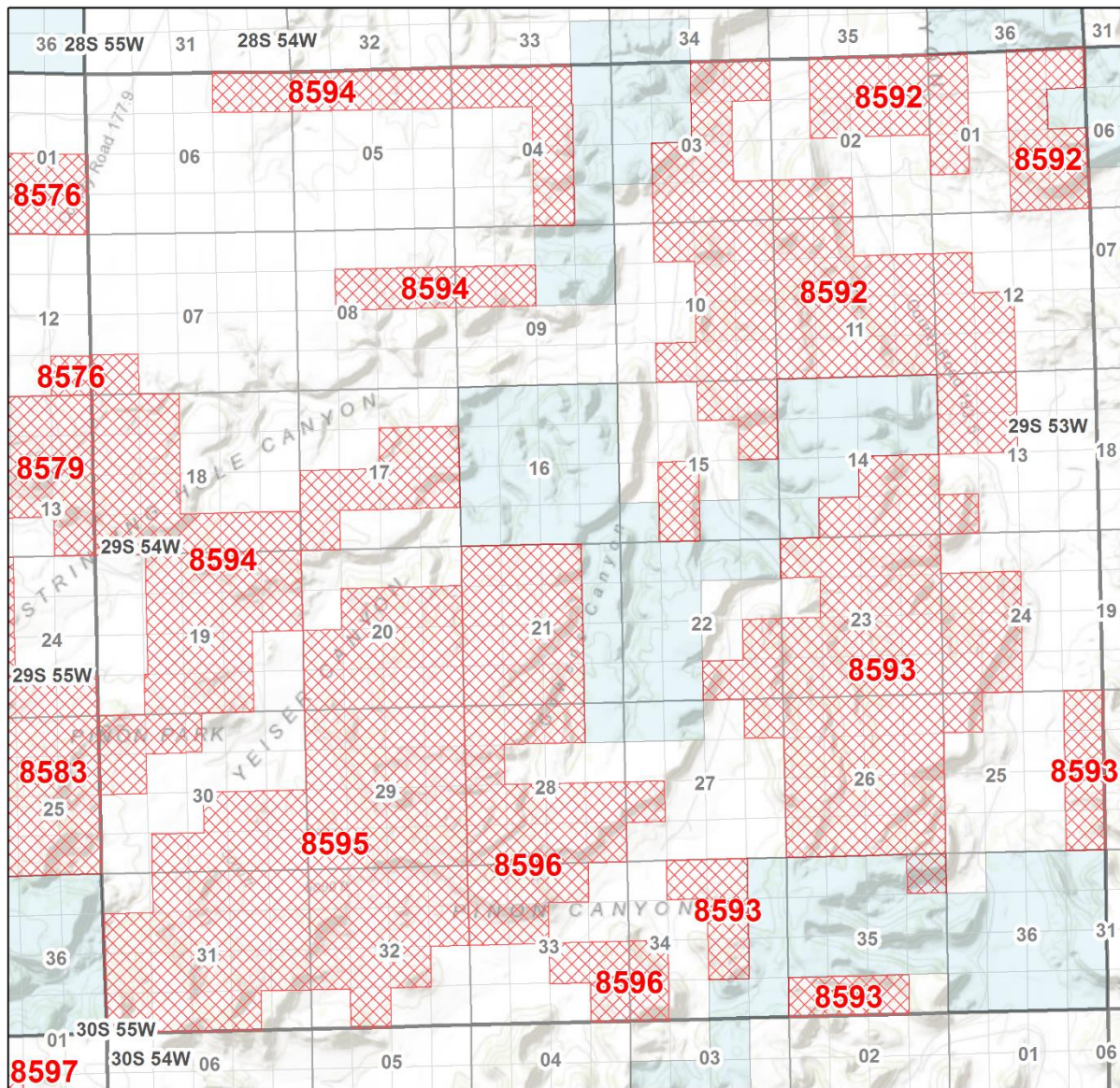
On the lands described below:

<LEGAL_DESCRIPTIONS>

For the purpose of (reasons):

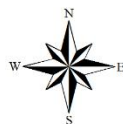
Least Tern and Piping Plover Nesting habitat.

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of the stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820.)



Parcels 8592, 8593, 8594, 8595, and 8596
September 2020 Competitive Oil and Gas Lease Sale
 Royal Gorge Field Office

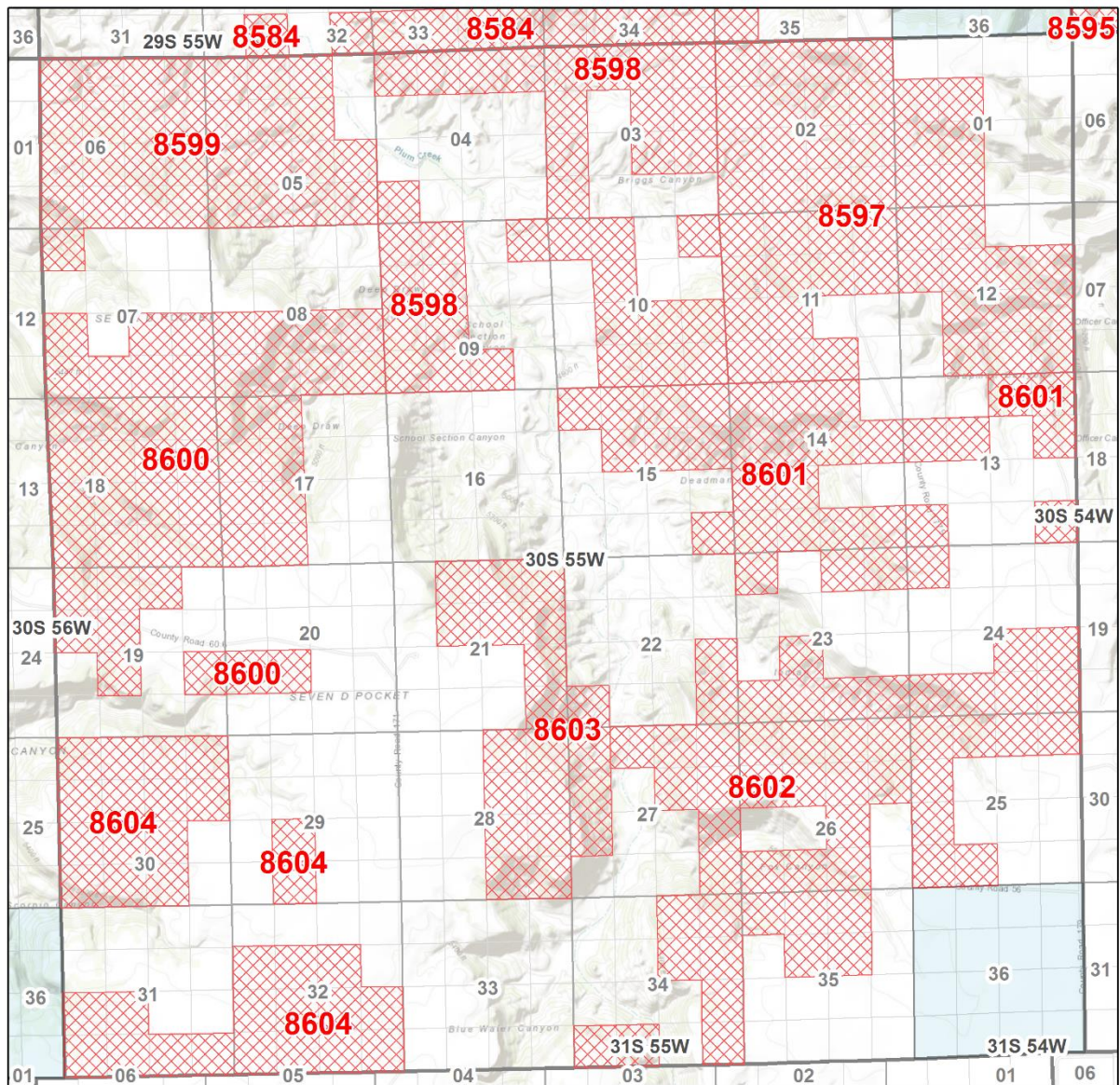
NOTE TO MAP USERS
 No warrantee is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of the data layers shown on this map. The official land records of the data providers should be checked or current status on any specific tract of land.



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 Miles

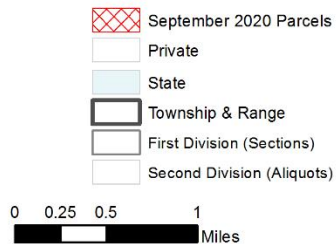
- September 2020 Parcels
- Private
- State
- Township & Range
- First Division (Sections)
- Second Division (Aliquots)

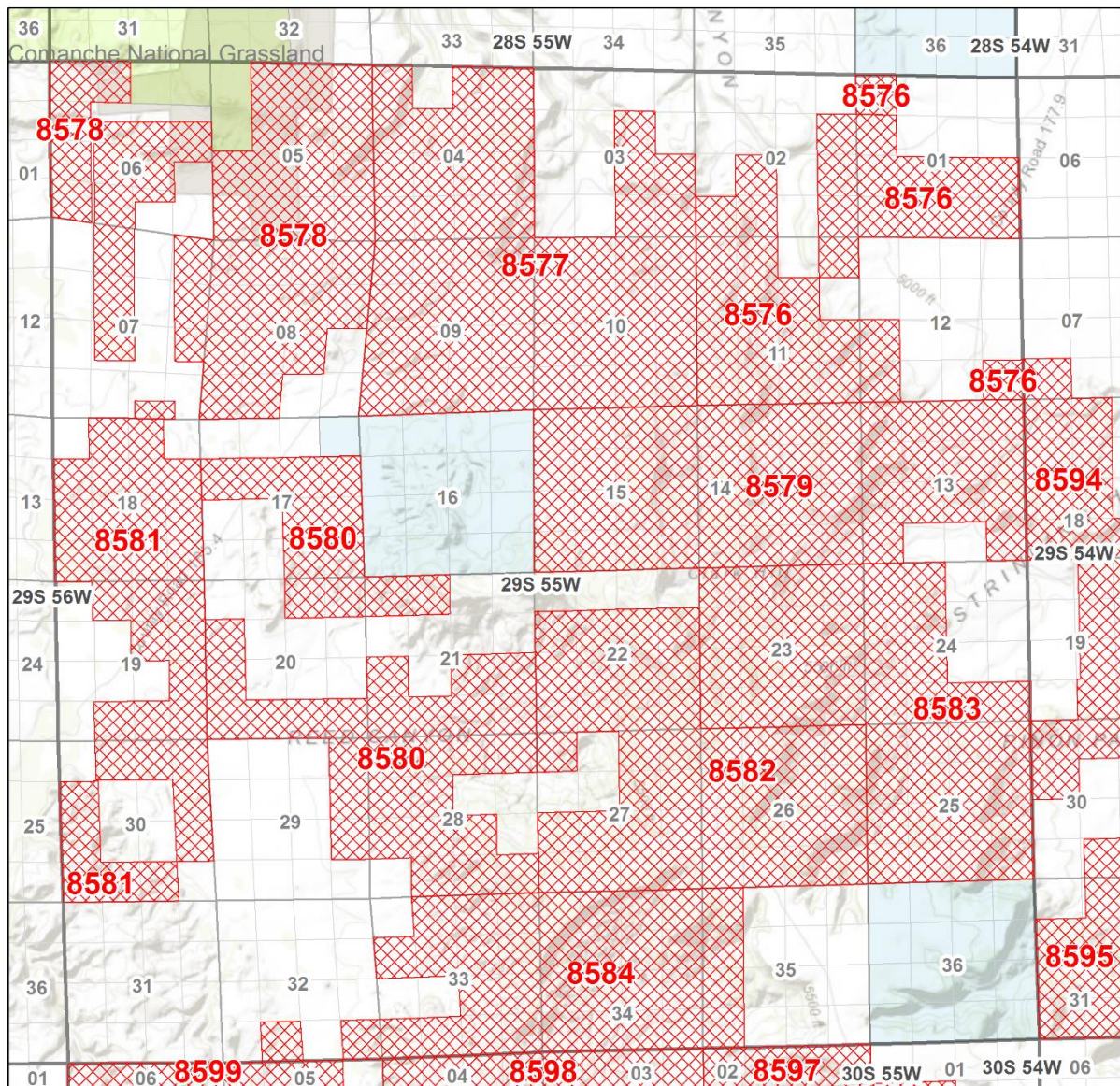




Parcels 8597, 8598, 8599, 8600, 8601, 8602, 8603, and 8604
September 2020 Competitive Oil and Gas Lease Sale
 Royal Gorge Field Office

NOTE TO MAP USERS
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Parcels 8576, 8577, 8578, 8579, 8580, 8581, 8582, 8583, and 8584 - September 2020 Competitive Oil and Gas Lease Sale

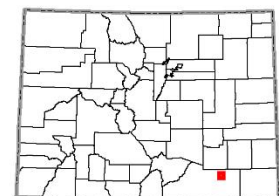
Royal Gorge Field Office

NOTE TO MAP USERS
 No warrantee is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of the data layers shown on this map. The official land records of the data providers should be checked or current status on any specific tract of land.

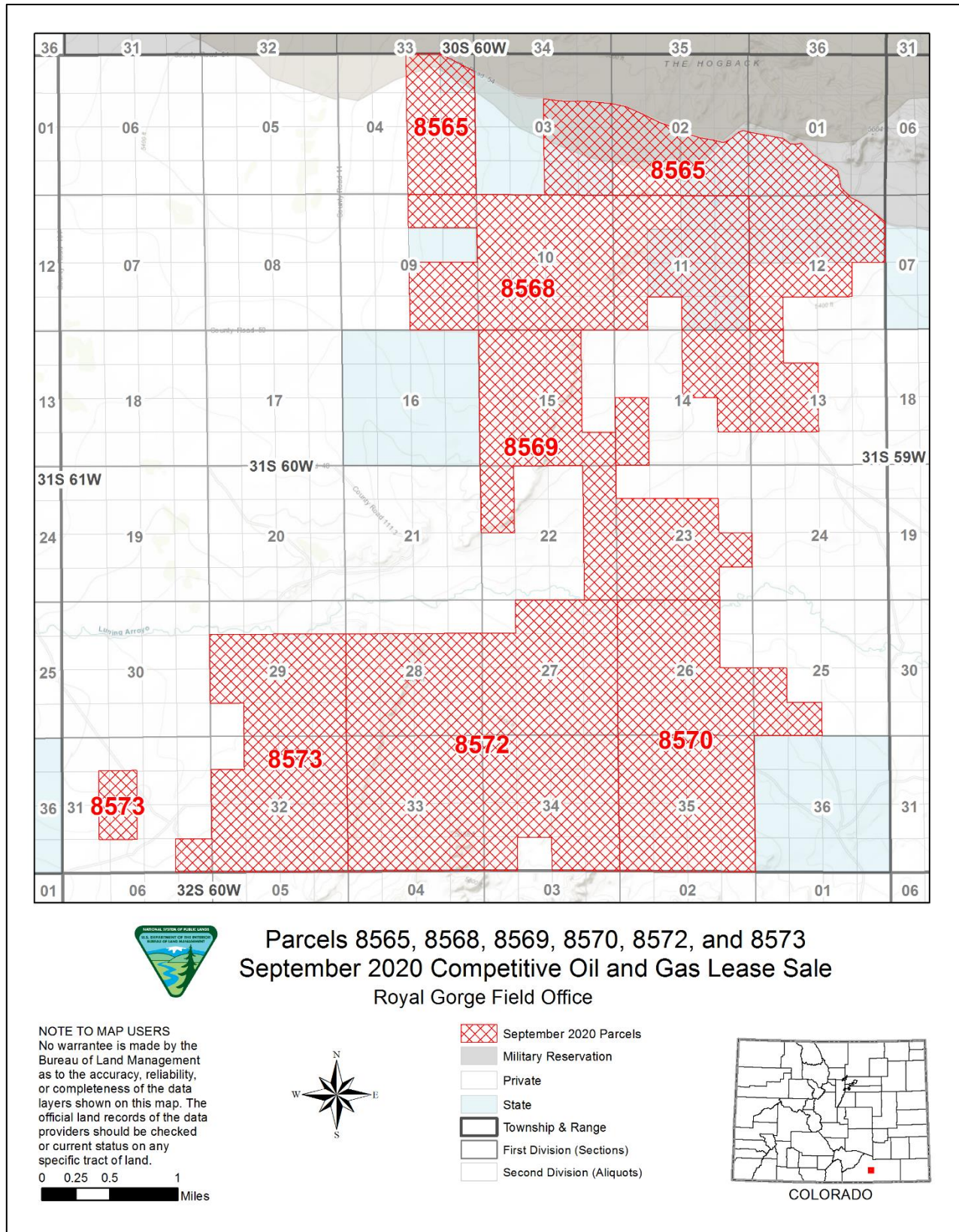
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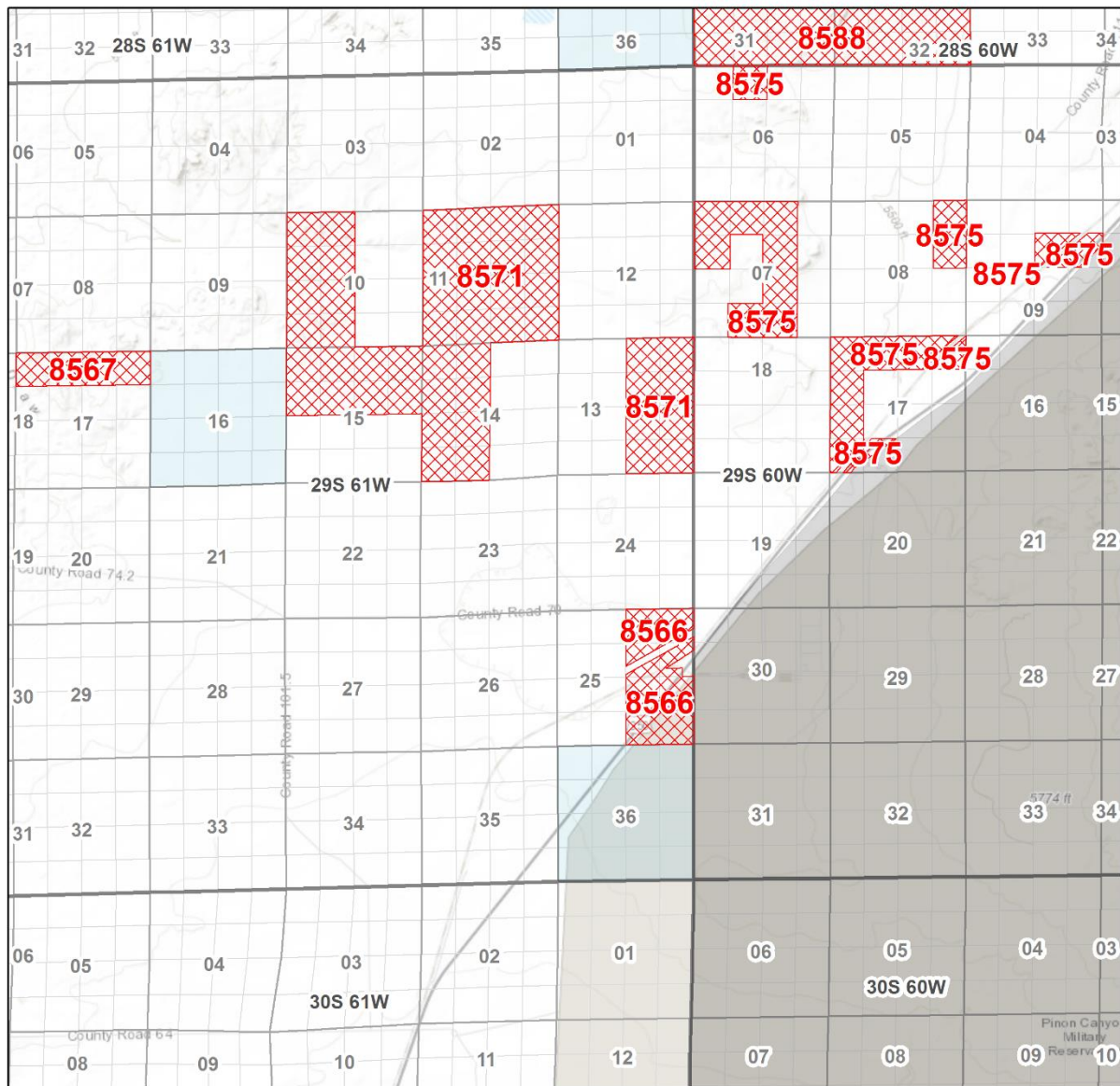


- September 2020 Parcels
- National Grasslands
- Private
- State
- Township & Range
- First Division (Sections)
- Second Division (Aliquots)



COLORADO





Parcels 8566, 8567, 8571, and 8575
September 2020 Competitive Oil and Gas Lease Sale
Royal Gorge Field Office

NOTE TO MAP USERS
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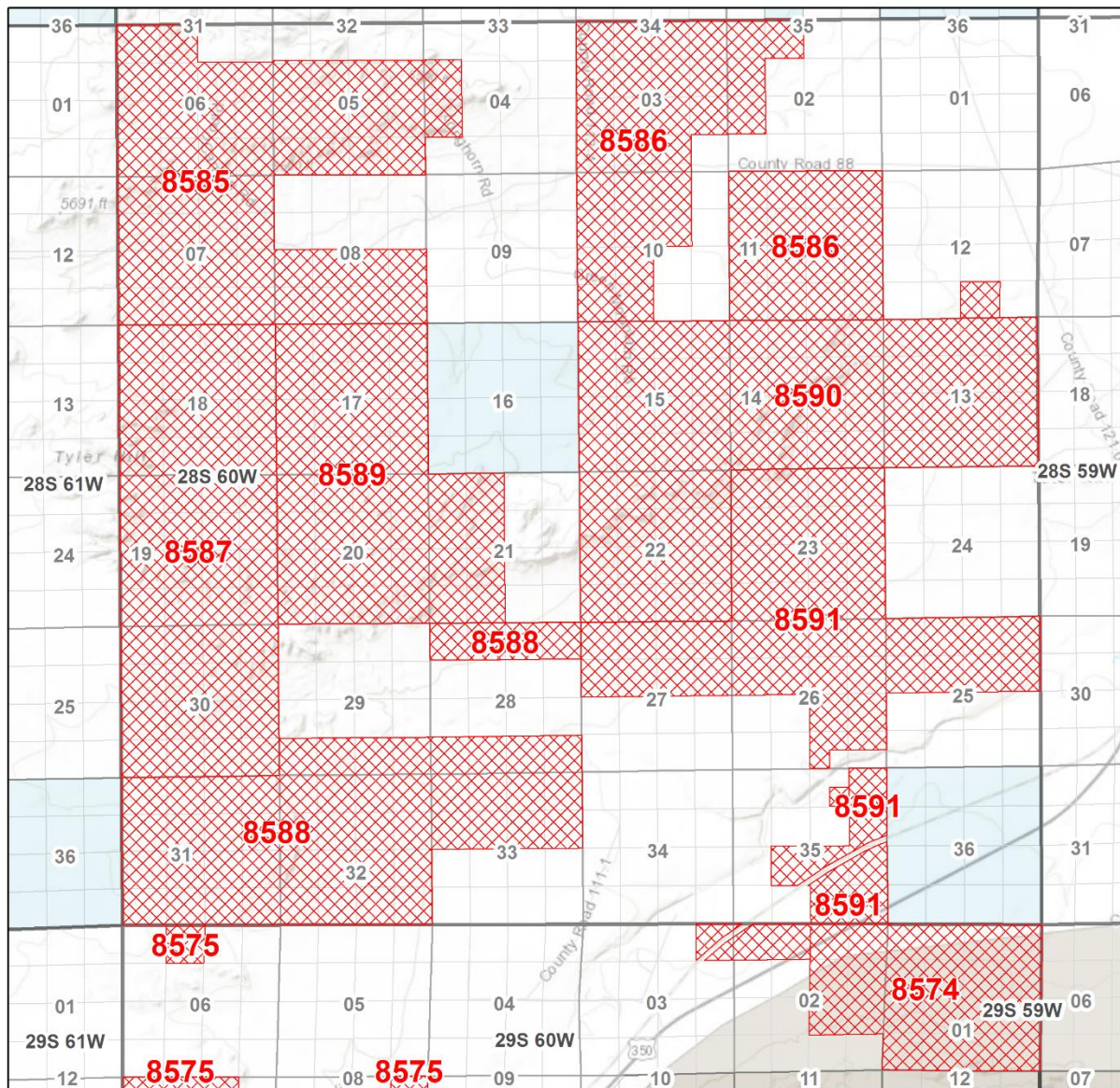
0 0.25 0.5 1
Miles



- September 2020 Parcels
- Military Reservation
- Private
- State
- Township & Range
- First Division (Sections)
- Second Division (Aliquots)



COLORADO



Parcels 8574, 8585, 8586, 8587, 8588, 8589, 8590, and 8591
September 2020 Competitive Oil and Gas Lease Sale
 Royal Gorge Field Office

NOTE TO MAP USERS
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Attachment F - Summary of Public and Interagency Comments on EA Draft

Topics raised by public comments are summarized and addressed below.

Resource	Concern/ <i>Commenter</i>	Response
NEPA	The BLM must prepare an EIS <i>WildEarth Guardians (WEG), Colorado Department of Public Health & Environment (CDPHE)</i>	The analysis presented in the Environmental Assessment identified no potentially significant impacts that warrant an EIS.
NEPA	The BLM cannot defer site specific analysis to the Application for Permit to Drill (APD) stage <i>WEG</i>	The leasing EA aids the BLM in its decision whether to lease the parcels under consideration, based on the analysis of potential impacts that are reasonably foreseeable at the leasing stage. Much of the information about potential future development is unknown until the BLM receives a project proposal. At the time of leasing, the BLM does not know whether a parcel will be developed, and if so, where the operator will propose to place pads, wells, roads, and infrastructure. The site-specific details included in an APD show exactly where disturbance is proposed to occur, and this information allows for environmental impacts to be analyzed in more detail.
NEPA	The BLM Should Use Its Discretion Not to Lease the Proposed Parcels <i>WEG</i>	When a Resource Management Plan is completed the BLM exercises its discretion to make lands eligible for potential leasing. The BLM exercised this discretion in the governing RMP and determined that the lands in this sale are open to oil and gas leasing and potential development.
NEPA	The BLM did not consider a reasonable range of alternatives.	Leasing decisions by the BLM are to lease or not to lease. In this case, the alternatives consist of the preferred alternative that includes all proposed parcels and the no action alternative. This range of alternatives is sufficient for the BLM to consider the potential impacts of leasing and make an

	<i>WEG, Audubon</i>	informed decision whether to offer to lease all, none or some of the parcels.
NEPA	<p>Proposal to lease parcels may result in impacts and prejudice in alternatives for the ECRMP</p> <p><i>WEG</i></p>	The current RMP is in full force and effect until a new RMP is signed. The potential impacts of leasing and future development have been sufficiently analyzed in this EA, and no new potentially significant impacts warranting analysis in an EIS have been identified.
NEPA	<p>The BLM must ensure the lease sale complies with NEPA and FLPMA.</p> <p><i>WEG</i></p>	Until a plan is revised, the BLM follows the decisions in the current land use plans, See section 2.4 in the EA. The September 2020 Lease Sale EA complies with FLPMA as stated in Sec 302. [43 U.S.C 1732] (a): “The Secretary shall manage public lands under principles of multiple use and sustained yield, in accordance with the land use plans developed by him under section 202 of this Act when they are available, except that where a tract of such public land has been dedicated to specific uses according to any other provisions of law it shall be managed in accordance with such law.” The BLM has prepared the EA in accordance with NEPA, to consider new information that has become available since completion of the RMP EIS.
NEPA	<p>Prioritizing oil and gas development is inconsistent with the multi-use mandate.</p> <p><i>Audubon</i></p>	<p>The BLM determines which lands are open to potential leasing in its RMPs, based on analyses that consider various resources and resource uses. The RMP decisions reflect the BLM’s balancing of multiple uses. Most of the parcels that the BLM considers for leasing originate through interested parties’ submittal of expressions of interest (EOI) in particular lands that are open for leasing. In some instances, the BLM internally identifies lands for leasing consideration, such as when leasing would protect the federal mineral interest from drainage by adjacent leases.</p> <p>The parcels in this sale are split estate which means The BLM does not manage the surface of these lands except through its oversight of drilling operations. The BLM does not control other surface uses on private lands.</p>

Policy/Procedure	<p>IM 2018-0034 is invalid and impedes informed decision making.</p> <p><i>Audubon</i></p>	<p>The BLM Colorado has prepared a thorough EA, provided a 30-day public comment period, and appropriately considered public comments. In addition, BLM will provide a 30-day protest period for the lease sale.</p>
NEPA	<p>Scoping comments were not responded to.</p> <p><i>Audubon</i></p>	<p>The fifteen-day public scoping period is used to introduce the parcels being offered in a sale and to solicit comments to help compose the NEPA document. Scoping comments were analyzed and incorporated into the NEPA document as appropriate. The BLM does not separately respond to scoping comments.</p>
NEPA	<p>The BLM did not fully consider the direct, indirect, and cumulative effects of the lease sale.</p> <p><i>Audubon</i></p>	<p>The RGFO EA analyzed reasonably foreseeable direct and indirect impacts of leasing the proposed parcels, as well as cumulative impacts. The corresponding RMP EIS's also considered the direct, indirect, and cumulative effects of leasing in the oil and gas leasing sections of the document for the planning areas.</p> <p>Some types of broad impacts of oil and gas development can be reasonably anticipated based on both the BLM resource specialists' familiarity with the general area of the lease sale, and review of existing GIS or other resource information. The BLM then analyzed whether these anticipated broad impacts were consistent with the RMPs.</p>
Water Quality, Surface and Ground	<p>CDPHE comments regarding impacts to groundwater and surface water, and release of PFAS and TENORM</p> <p><i>CDPHE</i></p>	<p>At the APD stage, the BLM will review site specific engineering and geology information and will require proper cementing and casing of wells to protect usable groundwater, per BLM Onshore Order #2. BMPs and state stormwater regulations will be implemented to protect surface water quality.</p>
Fluid Minerals	<p>The BLM should not be leasing in low potential land and doing so violates the Mineral Leasing Act.</p>	<p>Congress enacted a minimum bid of \$2 per acre and directed that parcels that do not receive bids at auction should remain available for non-competitive sale for two years. While BLM's analyses of resource impacts (such as air quality impacts) may consider available information about the oil and gas potential of particular lands, BLM does not base its leasing decisions on the relative oil and gas potential of particular lands. Oil and</p>

	<i>National Wildlife Federation (NWF)/Colorado Wildlife Federation (CWF), WEG</i>	gas operators make internal business decisions as to whether to bid on leases in a particular area. Classifications of oil and gas potential may change over time as new technologies develop and new oil and gas discoveries are identified.
Policy/Procedure	<p>The BLM should not conduct lease sales during a national emergency because meaningful comments are difficult to submit during a pandemic.</p> <p>NWF/CWF</p>	This was discussed in the EA see page 12.
Policy/Procedure	<p>The BLM's proposal to lease during an economic crisis violates the Mineral Leasing Act.</p> <p>WEG</p>	The lessee has ten years to initiate development of and oil and gas lease. Oil and gas markets fluctuate over a ten-year period. Developing an oil and gas lease involves many steps and can take several years. Throughout the life of an oil and gas lease rentals and royalties are paid to the federal government and economic benefits are returned to the taxpayer.
Hydrology/Minerals	<p>BLM Fails to Take a "Hard Look" at the Impacts of Hydraulic Fracturing for All of the Parcels.</p> <p>WEG</p>	<p>As stated in section 1.6, groundwater resources would be assessed at the Application for Permit to Drill (APD) Stage. Onshore Order #2 requires the protection of usable groundwater through proper drilling, cementing, and casing procedures.</p> <p>A research network funded by the National Science Foundation (NSF), which engaged 29 researchers at nine institutions, undertook a study of hydrocarbon and fracturing fluid migration in the Wattenberg Field, Denver Basin, CO (Fleckenstein, et al, 2015). The mission of the research is to provide a science-based framework for evaluating the trade-offs between hydrocarbon development and protection of water and air resources. The study of the Wattenberg Field found the following: 1.) There was no evidence of aquifer contamination due to stimulation through wellbores; 2.) Of the 17,948 wells in the study area, 10 exhibited signs of hydrocarbon migration to fresh water aquifers. 3.) Probability of hydrocarbon migration in vertical wells due to failure of one or more barriers was 0.06%; 4.) Migration of hydrocarbons only occurred in older vertical wells in which the casing did not extend through all usable water zones; the probability of hydrocarbon migration is directly correlated with</p>

		<p>the age of the well. 5.) There was no evidence of failure of one or more barriers in horizontal wells for shale development. 6.) There was no evidence of hydrocarbon migration in horizontal wells used for shale development.</p> <p>Another study, published in 2018, analyzed methane migration in the Utica Shale region of southern Ohio (Botner, et al, 2018). Wells drilled in the Utica Shale are typically completed using hydraulic fracturing techniques. The collected data as a free public water testing program in Ohio, which tested rural water wells. The study found no increase in CH₄ concentrations in rural water wells, and no change in isotopic CH₄ composition. CH₄ present in groundwater of the study area was determined to be biogenic in origin, and naturally occurring. 180 groundwater samples were collected in this study: three of the samples had naturally occurring concentrations of CH₄ which pose a fire or explosion hazard in enclosed spaces. This study is one of the only spatial-temporal studies of CH₄ concentrations and isotopic values in groundwater in an oil and gas extraction area.</p>
Hydrology	<p>The proposed action would impact water quality</p> <p><i>CDPHE</i></p>	<p>At the APD stage, BLM will review site specific engineering and geology information, and will require proper cementing and casing of wells to protect usable groundwater, per BLM Onshore Order #2. BMPs and state stormwater regulations will be implemented to protect surface water quality.</p>
Wastes, Hazardous or Solid/Fluid Minerals	<p>BLM should impose requirements to regulate waste and limit flaring.</p> <p><i>Audubon</i></p>	<p>Waste prevention and flaring is regulated by the 2018 Methane and Waste prevention rule. The state of Colorado (COGCC) has regulations pertaining to flaring and waste. Site specific flaring and waste disposal would be reviewed at the APD stage.</p>
Air Resources / GHGs and Climate Change	<p>There are also numerous unanswered questions regarding sage grouse, big-game habitat and effects on climate change that have not been addressed in previous documents.</p> <p><i>Grand Valley Audubon</i></p>	<p>The EA includes a comprehensive analysis of air quality and GHG and climate change impacts .</p> <p>The EA includes direct and indirect GHG emissions estimates for new oil and gas development that could occur on the lease parcels, and cumulative GHG and climate change information from BLM's Greenhouse Gas and Climate Change Report. In addition, the EA</p>

		<p>includes information from a BOEM analysis that was conducted for BLM Colorado using BOEM's MarketSim model to describe potential differences between the No-Action and Proposed Action Alternatives.</p> <p>Big Game issues are addressed in the wildlife section of comment responses.</p>
Air Resources / GHGs and Climate Change	<p>BLM Fails to Take a Hard Look at the Direct, Indirect, and Cumulative Impacts that Will Result from Greenhouse Gas Emissions from the Proposed Action.</p> <ul style="list-style-type: none"> • BLM's Comparison of the Impacts Between the No Action Alternative and the Preferred Alternative is Arbitrary. • BLM Fails to Fully Assess the Direct and Indirect Greenhouse Gas Emissions That Will Result from the Lease Sale. <p>We request that BLM disclose how it reached its direct GHG emissions rate.</p> <p>We also suggest that BLM include additional information in its direct and indirect greenhouse gas emissions analysis to disclose whether it considered greenhouse gases beyond CO2.</p> <ul style="list-style-type: none"> • BLM Fails to Analyze Cumulative Greenhouse Gas Emissions That Will Result from the Proposed Action. • BLM Fails to Assess the Proposed Action Within the Context of Recent, 	<ul style="list-style-type: none"> • For the EA No-Action Alternative GHG emissions discussion, BLM included information from a BOEM analysis that was conducted for BLM Colorado using BOEM's MarketSim model. MarketSim models oil, gas, coal, and electricity markets to produce estimates of the substitute energy source mix from production changes expected under various resource-restricted scenarios. The model provides net substitution assessments for oil and gas imports, onshore oil and gas production, fuel switching (e.g., coal), and reduced energy consumption (demand) for a given period of time. For this BOEM analysis, BLM wanted to see how the energy markets and Global GHG emissions profiles would be affected should (hypothetically) the energy market not receive / include ~ 6 years (years 2019 – 2025) of new Colorado Federal oil and gas production. Smaller quantities of new oil and gas production such as the new oil and gas that could be produced from the subject lease parcels could have been evaluated for the BOEM analysis, but the BLM wanted to see the energy market and Global GHG emissions impacts for removing a larger quantity of new oil and gas production that reasonably could result in noticeable market / Global shifts. As described in the BOEM report and EA, MarketSim predicts that under the statewide federal "No Development" scenario, emissions from substitute sources would equate to approximately 91 percent of the Colorado federal oil and gas GHG emissions (as CO2e) associated with the 6-year full new oil and gas development scenarios. Using this information, it is reasonable to conclude that removing smaller quantities of new Federal oil and gas production (amounts that could occur for new oil and gas

	<p>Significant Climate Science.</p> <ul style="list-style-type: none"> • BLM Fails to Assess the Proposed Action Within the Context of Declining Carbon Budgets. <p><i>WEG and Center for Biological Diversity (CBD)</i></p>	<p>production on the subject lease parcels) would provide similar results or not impact the energy markets as much (i.e more energy would be developed elsewhere to offset). The BOEM analysis conducted for the BLM Colorado is useful for levels of new oil and gas production equivalent to that analyzed (~ 6 years of new Colorado-wide Federal oil and gas production) and smaller quantities of new Federal oil and gas production.</p> <ul style="list-style-type: none"> • The EA provides per-well GHG emissions rates that account for up-stream (direct), mid-stream (indirect) and down-stream (indirect) activities and processes, and then provides 30-year projected total potential CO₂e emissions for new federal oil and gas development on the subject parcels using these per-well rates along with reasonably foreseeable new oil and gas development rate based on historical well development density information. The direct GHG emissions were estimated based on 11 recent oil and gas projects in areas near the lease parcels, and account for CO₂, CH₄ and N₂O emissions from initial upstream construction, and long-term upstream/midstream operational activities. The indirect GHG estimates primarily account for CO₂ emissions associated with downstream combustion of oil and gas that could be produced from the lease parcels. These projected GHG emissions estimates for new Federal oil and gas development are compared to other GHG emissions estimates to provide context for analysis. • In addition to the direct and indirect GHG emissions estimated for new oil and gas development that could occur on the lease parcels, the EA provides cumulative GHG and climate change information from BLM's Greenhouse Gas and Climate Change Report. Specifically, the EA summarizes the projected 2020 and 2030 annual GHG emissions and trends for Federal mineral resources in Colorado and nearby states. Other cumulative GHG emissions estimates are provided in the EA including the 30-year (years 2020–2050) CO₂e emissions total for the region including the U.S. (R50ECD World Region) under the IPCC concentration
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		<p>pathway for smallest climate change scenario (RCP 2.6) to provide for comparing other GHG emissions estimates to the Global modeled scenario with the lowest predicted climate changes.</p> <ul style="list-style-type: none">• The Lease Sale EA references BLM Colorado’s Annual Report 2.0, which incorporates GHG emissions projections and qualitative information about climate change from IPCC’s latest published Synthesis Report (Fifth Assessment [AR5]). The IPCC Synthesis Report describes future Global climate model predicted changes for the Rocky Mountain Region, based on multiple hypothetical future (through year 2100) emissions scenarios that account for changes in future Global energy profiles (accounting for U.S. federal oil and gas growth and decline for all States). A 30-year (years 2020–2050) GHG emissions sub-set of these projected Global emissions estimates for Region including U.S. (R50ECD World Region) are provided in the EA to provide context for analysis.• The Annual Report 2.0 also includes information from IPCC’s latest Special Report (SR15), which includes Carbon Budget revisions to account for problems associated with the Earth System Models used in the AR5 budget estimates. Information regarding the Global Carbon Project is also incorporated for the Lease Sale EAs.• The Lease Sale EA discussed and incorporated by reference information from the BLM Colorado online Annual Report 2.0 and BLM’s GHG and Climate Change Report. The Annual Report 2.0 includes information from IPCC’s latest Special Report (SR15) regarding the Global Carbon Project. The EA provides information describing the carbon budget and federal oil and gas GHG emissions contributions to the carbon budget.
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<p>Air Resources / GHGs and Climate Change</p>	<p>Cumulative effects.</p> <p>BLM must analyze potential climate impacts resulting from this lease sale.</p> <ul style="list-style-type: none"> • BLM must analyze climate impacts at the leasing stage. • The underlying RMPs are inadequate to support leasing without supplemental NEPA. <p><i>Audubon</i></p>	<p>In addition to the GHG and Climate Change assessment, the Lease Sale EA included information from the CARMMS 2.0 modeling study that assesses Colorado-wide impacts of projected new Federal and non-Federal oil and gas development through year 2025. The EA provides potential future cumulative impacts to nitrogen deposition, visibility and ozone, and RGFO specific contributions to these cumulative impacts due to new oil and gas development and other Regional emissions sources (CARMMS emissions inventories account for all sectors). As described in the EA, overall cumulative air quality related conditions are expected to improve into the future and new federal oil and gas development within the RGFO through year 2025 for the CARMMS 2.0 high scenario (highest level of new oil and gas development years 2016 through 2025) would not cause significant impacts to air resources.</p> <p>BLM has completed a GHG and climate change assessment in this Lease Sale EA. The EA includes direct and indirect GHG emissions estimates for new oil and gas development that could occur on the lease parcels, and cumulative GHG and climate change information from BLM's Greenhouse Gas and Climate Change Report. In addition, the EA included information from a BOEM analysis that was conducted for BLM Colorado using BOEM's MarketSim model to describe potential differences for the No-Action and Proposed Action Alternatives.</p>
<p>Air Resources / GHGs and Climate Change</p>	<ul style="list-style-type: none"> • BLM should prepare an EIS for this proposed lease sale, which addresses the contribution of ozone and ozone precursors to the DMNFR Ozone Nonattainment Area (if any). • The EIS should address cumulative air quality impacts of this proposed lease sale, including climate change impacts. • the EIS should discuss any inconsistencies with Colorado's efforts to: 	<ul style="list-style-type: none"> • Leasing several parcels near the Denver ozone NAA does not warrant an EIS. BLM completes a project-level ozone impacts assessment when it receives new Federal oil and gas development proposals and project plans from operators. Potential ozone impacts assessments are most appropriate when an operator proposes a new project and that detailed information allows BLM to develop accurate emissions estimates. Oil and gas operators complete online forms with project-level details (horsepower of drill rig and frac pumps, etc.) that BLM uses to calculate accurate project-specific information (emissions, etc.). As described in the EA, BLM and CDPHE currently have an MOU for exchanging data and information to assist CDPHE with developing future federal and non-

	<p>maintain PM10 federal standards;</p> <p><input type="checkbox"/> achieve visibility goals under the federal Regional Haze Rule;</p> <p><input type="checkbox"/> attain federal ozone standards;</p> <p><input type="checkbox"/> reduce GHG emissions in accordance with House Bill 1261 (50% reduction by 2030 and 90% reduction by 2050) and;</p> <p><input type="checkbox"/> prioritize public health, safety, welfare, the environment and wildlife</p> <p><input type="checkbox"/> resources during oil and gas development as provided for in Senate Bill 19-181.</p> <p><i>CDPHE</i></p>	<p>federal oil and gas emissions inventories for Colorado State Implementation Plan (SIP) demonstrations. In addition, this Lease Sale EA includes a near-field quantitative analysis of potential impacts associated with new oil and gas development that could occur on the three lease parcels located in the Pawnee NG just north of the O3 NAA and in areas near these parcels that was conducted utilizing a gridded near-field assessment tool based on the results of the Colorado Air Resource Management Modeling Study (CARMMS) (version 2.0). As described for that analysis, future cumulative ozone concentrations in the area surrounding the parcels are expected to remain below the current ozone standard and contributions to the cumulative concentrations from new Federal oil and gas development / operations are predicted to be minimal.</p> <ul style="list-style-type: none"> • The Lease Sale EA used the CARMMS 2.0 modeling study that assesses Colorado-wide impacts of projected new Federal and non-Federal oil and gas development through year 2025. The EA provides potential future cumulative impacts to nitrogen deposition, visibility and ozone, and RGFO specific contributions to these cumulative impacts due to new oil and gas development and other Regional emissions sources (CARMMS emissions inventories account for all sectors). As described in the EA, overall cumulative air quality related conditions are expected to improve into the future and new federal oil and gas development within the RGFO through year 2025 for the CARMMS 2.0 high scenario (highest level of new oil and gas development years 2016 through 2025) would not cause significant impacts to air resources. • In addition to the direct and indirect GHG emissions estimated for new oil and gas development that could occur on the lease parcels, the EA provides cumulative GHG and climate change information from BLM's Greenhouse Gas and Climate Change Report. Specifically, the EA summarizes the projected 2020 and 2030 annual GHG emissions and trends for
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		<p>Federal mineral resources in Colorado and nearby states. Other cumulative GHG emissions estimates are provided in the EA including the 30-year (years 2020–2050) CO₂e emissions total for the region including the U.S. (R50ECD World Region) under the IPCC concentration pathway for smallest climate change scenario (RCP 2.6) to provide for comparing other GHG emissions estimates to the Global modeled scenario with the lowest predicted climate changes.</p> <ul style="list-style-type: none"> • BLM and CDPHE currently have an MOU for exchanging data and information to assist CDPHE with developing future federal and non-federal oil and gas emissions inventories for Colorado State Implementation Plan (SIP) demonstrations. BLM Colorado follows protocol for conducting analyses for proposed projects within the Denver O₃ NAA. <p>Modeling analyses for the Regional Haze Rule assessments are currently ongoing (2020), and the BLM is working with Stakeholders for source apportioning Federal oil and gas emissions contributions to the cumulative Regional Haze impacts to better understand what sources are driving visibility impacts for the Region.</p> <p>HB 19-1261 may result in new Colorado Air Quality Control Commission regulations to achieve its GHG emission reduction goals. As noted in the EA, such reductions, if achieved, would change the cumulative impacts of emissions resulting from BLM decisions, and BLM will continue to evaluate emission trends in its future decision-making.</p> <p>BLM Colorado develops detailed and accurate emissions inventories when proposed projects are submitted to the BLM. BLM Colorado uses regional modeling studies including the CARMMS and near-field analysis tools including AERMOD to account for all potential impacts associated with a project and cumulative emissions sources in order to afford protection to all valuable resources.</p>
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<p>Air Resources / GHGs and Climate Change</p>	<p>BLM provides an inadequate assessment of the significance of the potential climate impacts in the EA. BLM provides projected emissions from reasonably foreseeable leasing activity, compares only state-wide federal mineral projects' emissions quantities to other greenhouse gas emissions inventories. This provides no information about the climate impacts of the proposed action itself.</p> <p><i>Policy Integrity</i></p>	<ul style="list-style-type: none"> • The EA provides cumulative GHG and Climate Change information from BLM's Greenhouse Gas and Climate Change Report. Specifically, the EA summarizes the projected 2020 and 2030 annual GHG emissions and trends for Federal mineral resources in Colorado and nearby states. Other cumulative GHG emissions estimates are provided in the EA including the 30-year (years 2020–2050) CO2e emissions total for the region including the U.S. (R50ECD World Region) under the IPCC concentration pathway for smallest climate change scenario (RCP 2.6) to provide for comparing other GHG emissions estimates to the Global modeled scenario with the lowest predicted climate changes. • The IPCC Synthesis Report describes future Global climate model predicted changes for the Rocky Mountain Region, based on multiple hypothetical future (through year 2100) emissions scenarios that account for changes in future Global energy profiles (accounting for U.S. federal oil and gas growth and decline for all States). A 30-year (years 2020–2050) GHG emissions sub-set of these projected Global emissions estimates for Region including U.S. (R50ECD World Region) are provided in the EA to provide context for analysis. • The EA provides information describing the carbon budget and federal oil and gas GHG emissions contributions to the carbon budget. • The EA included information from a BOEM analysis that was conducted for BLM Colorado using BOEM's MarketSim model to describe potential differences for the No-Action and Proposed Action Alternatives.
<p>Terrestrial Wildlife</p>	<p>BLM fails to address impacts of oil and gas leasing on priority big game habitat and fails to evidence meaningful</p>	<p>Impacts to priority big game species were considered and addressed in the EA and appropriate stipulations were attached to proposed parcels. BLM-RGFO has worked closely with Colorado Parks and Wildlife (CPW), the state's wildlife managing agency, during the scoping and</p>

	<p>coordination with state wildlife and natural resource agencies.</p> <p><i>Audubon, WEG,NWF, CWF, Theodore Roosevelt Conservation Partnership</i></p>	<p>review periods. CPW has confirmed that the stipulations, lease notices, and available mitigation measures are sufficient to protect big game habitat.</p>
Terrestrial Wildlife	<p>CPW recommends a Master Development Plan be completed for the 40 nominated parcels in southern Las Animas County that overlap with production areas and important winter habitat for Rocky Mountain bighorn sheep prior to initiating new disturbance and the consolidation of facilities with management of well pad and road densities in bighorn sheep occupied range within the leased area.</p> <p><i>Colorado Parks & Wildlife</i></p>	<p>Language has been added to potential future mitigation acknowledging that a Master Development Plan may be one potential option to avoid/minimize impacts to big horn sheep for the 40 proposed lease parcels nominated in Las Animas County if development were to occur.</p>
Wildlife	<p>Recommended deferral of listed parcels due to overlap with wildlife habitat.</p> <p><i>Adena Rice</i></p>	<p>All lease parcels were reviewed in close coordination with Colorado Parks and Wildlife. Stipulations have been attached to proposed parcels to mitigate future impacts to these species. In addition, BLM may impose conditions of approval for proposed projects at the development phase.</p>
Market Conditions	<p>BLM is managing resources for the public and should be ensuring a fair return, which is not achievable during current low energy market prices.</p> <p><i>Audubon, NWF/CWF</i></p>	<p>Markets for all commodities fluctuate over time. The BLM does not attempt to “time” the lease of public lands for minerals development to any particular set of market conditions. The BLM holds competitive lease sales (auctions), which contributes to sale prices that accurately reflect fair market value at the time of sale, regardless of market conditions.</p>
Market Conditions	<p>BLM should take into account the “option value” of deferring leasing.</p> <p><i>Audubon</i></p>	<p>NEPA does not require BLM maximize the net present value that may result from land management decisions. The BLM evaluates the potential social and economic impacts of different alternatives and uses this comparison to inform decisions.</p>

<p>Market Conditions</p>	<p>[C]urrent market encourages below-market, speculative leasing by industry actors who do not actually intend to develop the public lands they lease. A review of noncompetitive leases shows that BLM frequently terminates these leases because the lessee stops paying rent.</p> <p><i>Audubon</i></p>	<p>Development is still occurring on Federal lands even with the pandemic and the low commodity prices. Many expressions of interest are received anonymously; therefore, the BLM cannot predict which applicant is interested in development versus speculative investment in federal leases.</p>
<p>Social Cost of Carbon</p>	<p>BLM Fails to Analyze the Costs of Reasonably Foreseeable Carbon Emissions Using Well-Accepted, Credible, GAO-Endorsed, Interagency Methods for Assessing Carbon Costs.</p> <p><i>WEG/Institute for Policy Integrity – New York University Law School (Policy Integrity)</i></p>	<p>The BLM has used other approaches to examine climate consequences from GHG emissions associated with the proposed leasing. The EA quantifies estimates of total GHG emissions (tons of CO₂e) for all stages of oil and gas development, production, transport and consumption for potential oil and gas development that could occur on the subject lease parcels. Thus, the more GHG that are emitted the greater the impact on climate for a given alternative. In addition, the EA discusses potential climate impacts qualitatively.</p> <p>The BLM took this approach because climate change and potential climate impacts, in and of themselves, are often not well understood by the general public (Etkin and Ho 2007, National Research Council 2009). This is in part due to the challenges associated with communicating about climate change and climate impacts, stemming in part from the fact that most causes are invisible factors and there is a long lag time and geographic scale between causes and effects (National Research Council 2010).</p> <p>The approach taken by the BLM recognizes that there are adverse environmental impacts associated with the development and use of fossil fuels on climate change, provides potential GHG emission estimates, places those estimates in context of emissions at other scales (U.S., Global), and discusses potential climate change impacts qualitatively, thus effectively informing the decision-maker and the public of the potential for GHG emissions and the potential implications of climate change. This approach presents the data and information in a manner that follows many of the guidelines for effective climate change communication developed by the National Academy of Sciences (National Research Council 2010) by making the information more readily understood and relatable to the decision-maker and the general public.</p>

